

The need for acute, subacute and nonacute care at 105 general hospital sites in Ontario



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Abstract

Background: Previous studies of hospital utilization have not taken into account the use of acute care beds for subacute care. The authors determined the proportion of patients who required acute, subacute and nonacute care on admission and during their hospital stay in general hospitals in Ontario. From this analysis, they identified areas where the efficiency of care delivery might be improved.

Methods: Ninety-eight of 189 acute care hospitals in Ontario, at 105 sites, participated in a review that used explicit criteria for rating acuity developed by InterQual Inc., Marlborough, Mass. The records of 13 242 patients who were discharged over a 9-month period in 1995 after hospital care for 1 of 8 high-volume, high-variability diagnoses or procedures were randomly selected for review. Patients were categorized on the basis of the level of care (acute, subacute or nonacute) they required on admission and during subsequent days of hospital care.

Results: Of all admissions, 62.2% were acute, 19.7% subacute and 18.1% nonacute. The patients most likely to require acute care on admission were those with acute myocardial infarction (96.2% of 1826 patients) or cerebrovascular accident (84.0% of 1596 patients) and those admitted for elective surgery on the day of their procedure (73.4% of 3993 patients). However, 41.1% of patients awaiting hip or knee replacement were admitted the day before surgery so did not require acute care on admission. The proportion of patients who required acute care on admission and during the subsequent hospital stay declined with age; the proportion of patients needing nonacute care did not vary with age. After admission, acute care was needed on 27.5% of subsequent days, subacute care on 40.2% and nonacute care on 32.3%. The need for acute care on admission was a predictor of need for acute care during subsequent hospital stay among patients with medical conditions. The proportion of patients requiring subacute care during the subsequent hospital stay increased with age, decreased with the number of inpatient beds in each hospital and was highest among patients with congestive heart failure, chronic obstructive pulmonary disease and pneumonia.

Interpretation: In 1995, inpatients requiring subacute care accounted for a substantial proportion of nonacute care days in Ontario's general hospitals. These findings suggest a need to evaluate the efficiencies that might be achieved by introducing a subacute category of care into the Canadian health care system. Generally, efforts are needed to reduce the proportion of admissions for nonacute care and of in-hospital days for other than acute care.

Résumé

Contexte : Des études antérieures sur l'utilisation des hôpitaux n'ont pas tenu compte de l'utilisation de lits de soins actifs pour dispenser des soins sub-aigus. Les auteurs ont établi la proportion de patients dans des hôpitaux généraux de l'Ontario qui

Evidence

Études

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avaient besoin de soins actifs, sub-aigus et non aigus au moment de l'admission et au cours de leur séjour à l'hôpital. À partir de cette analyse, ils ont défini des domaines où il pourrait être possible d'améliorer l'efficacité de la prestation des soins.

Méthodes : Sur 189 hôpitaux de soins actifs de l'Ontario, 98 à 105 endroits ont participé à une étude dans le cadre de laquelle on a utilisé des critères explicites d'évaluation du caractère aigu mis au point par InterQual Inc., de Marlborough (Mass.). Les auteurs ont choisi au hasard, pour les étudier, les dossiers de 13 242 patients libérés pendant une période de 9 mois en 1995 après avoir reçu des soins hospitaliers pour un des huit diagnostics ou interventions à volume et variabilité élevés. Les patients ont été classés en fonction du niveau des soins (actifs, sub-aigus ou non aigus) dont ils avaient besoin au moment de l'admission et au cours de l'hospitalisation subséquente.

Résultats : Sur tous les patients admis, 62,2 % avaient besoin de soins actifs, 19,7 %, de soins sub-aigus et 18,1 %, de soins non aigus. Les patients les plus susceptibles d'avoir besoin de soins actifs au moment de l'admission étaient ceux qui avaient été victimes d'un infarctus aigu du myocarde (96,2 % de 1826 patients) ou d'un accident cérébro-vasculaire (84,0 % de 1596 patients) et ceux qui ont été admis pour une chirurgie électorale le jour de l'intervention (73,4 % de 3993 patients). Cependant, 41,1 % des patients qui attendaient un remplacement de la hanche ou du genou ont été admis la veille de l'intervention et n'avaient donc besoin pas de soins actifs au moment de l'admission. La proportion des patients qui avaient besoin de soins actifs au moment de l'admission et au cours de l'hospitalisation subséquente a diminué avec l'âge et celle des patients qui ont besoin des soins non aigus n'a pas changé avec l'âge. Après l'admission, les patients ont eu besoin de soins actifs pendant 27,5 % des jours qui ont suivi, de soins sub-aigus pendant 40,2 % et de soins non aigus, pendant 32,3 %. Le besoin de soins actifs au moment de l'admission était un prédicteur du besoin de soins actifs au cours du séjour subséquent à l'hôpital chez les patients qui avaient un problème médical. La proportion de patients qui ont eu besoin de soins sub-aigus au cours de l'hospitalisation subséquente a augmenté avec l'âge, a diminué avec le nombre de lits affectés aux malades hospitalisés dans chaque hôpital et a été le plus élevé chez les patients souffrant d'insuffisance cardiaque globale, de bronchopneumopathie chronique obstructive et de pneumonie.

Interprétation : En 1995, les patients hospitalisés qui avaient besoin de soins sub-aigus ont absorbé une proportion importante des jours de soins non aigus dans les hôpitaux généraux de l'Ontario. Ces constatations indiquent qu'il faut évaluer les efficacités qu'il pourrait être possible de réaliser en ajoutant une catégorie de soins sub-aigus dans le système de soins de santé du Canada. Il faut en général essayer de réduire la proportion des admissions pour des soins non aigus et des jours d'hospitalisation pour des soins autres que les soins actifs.

The use of general hospital beds is conventionally considered inappropriate when a patient's clinical condition is such that care could be provided more efficiently or effectively in a nonacute care setting. Studies based on structured chart reviews using various instruments have shown that between 18% and 48% of admissions of adults to acute care beds and between 19% and 60% of subsequent days of acute care are inappropriate.¹⁻⁹

Such studies have been conducted in 3 Canadian provinces, all with essentially the same audit criteria. In Saskatchewan researchers found that for adult medical patients 47% to 61% of admissions and 37% to 61% of subsequent days in hospital were for acute care; the propor-

tions varied by hospital size and type.¹⁰ A Manitoba study showed that 50% of medical admissions for adults but only 33% of the subsequent days in hospital were for acute care.¹¹ Researchers in British Columbia found that 25% of admissions and less than 50% of the subsequent days in hospital were for acute care.¹²

Here we report a study of acute care bed use in Ontario.¹³ Unlike other Canadian studies, which categorized patients only as needing acute or nonacute care, our study included an intermediate category — subacute care — to better reflect the clinical and social constraints affecting the efficient use of beds. Subacute care is defined as "comprehensive inpatient care . . . rendered immediately after



or instead of acute hospitalization to treat one or more specific, active complex medical conditions . . . Subacute care is generally more intensive than traditional nursing facility care and less than acute care.”¹⁴

We hypothesized that the high levels of inappropriate acute care bed use shown by other Canadian studies might be explained in part by the admixture of patients requiring subacute care. If so, the need for institutional beds in Ontario may be greater than the number estimated on the basis of studies in other provinces and the efficiency and effectiveness of those institutional beds might be enhanced by developing the capacity to provide subacute care.

Methods

Study hospitals

Ninety-eight (51.9%) of the 189 acute care hospitals in Ontario agreed to participate in our study. The final sample included 105 separate sites; for merged facilities, administrators designated the site(s) from which to sample. To ensure appropriate comparisons, we used the “peer group” (PG) classification of the Ontario Ministry of Health. Teaching hospitals are categorized by caseload acuity: hospitals in the PG1 group have caseloads with relatively high average acuity, whereas those in the PG2 group have caseloads with relatively low average acuity. Community-based hospitals are categorized by bed capacity: the PG3 through PG7 groups have, respectively, 400 or more beds, 200 to 399 beds, 100 to 199 beds, 50 to 99 beds, and fewer than 50 beds.

Participation rates ranged from 93% of PG3 hospitals to 29% of PG7 hospitals. Participation rates were higher for larger hospitals (76% of hospitals in PG1 to PG5) than for smaller facilities (36% of hospitals in PG6 and PG7). Regional participation ranged from a low of 43% (15 of 35 hospitals) in southeastern Ontario to a high of 77% (24 of 31 hospitals) in central Ontario.

Chart sampling

Discharge data from each hospital for the 1994–95 fiscal year were analysed to identify the diagnoses and surgical procedures for which average length of stay was variable and for which acute care bed use could potentially be reduced.¹⁵ We chose to review the care of patients who had primary diagnoses of acute myocardial infarction (AMI), congestive heart failure (CHF), chronic obstructive pulmonary disease (COPD), cerebrovascular accident (CVA) or pneumonia, and of those who underwent elective hip or knee replacement, hysterectomy or transurethral resection of the prostate (TURP).

Our goal was to sample the charts of 20 patients discharged from each participating hospital between Apr. 1 and Dec. 31, 1995, for each of the 8 diagnoses or procedures (i.e., a total of 160 charts per hospital). We excluded charts of patients who were less than 18 years of age, who died while in hospital or who were transferred from or to another acute care facility. Details on the sampling methods are available from the authors.¹³

Utilization review methods

For this study we needed explicit utilization criteria to rate acuity of care. On the basis of critical reviews of the criteria available¹⁶ a panel of health care providers and managers chose the 1996 version of the InterQual Intensity of Service, Severity of Illness and Discharge Screens for Acute Care (ISD-AC) review system.¹⁷ The ISD criteria sets for critical, acute (which includes observation) and subacute care¹⁸ correspond with levels of care delivered in acute care institutions in Ontario. The criteria for acute care include instability of the patient’s condition, need for treatment and medication at the critical or acute level, and need for daily intensive diagnostic or invasive testing under the direction of a physician. The criteria for subacute care include medically stable condition, an established diagnosis and need for at least 4 hours of professional care each day coordinated by a nurse with interval evaluations by a physician but no need for intensive or invasive diagnostic testing. The criteria for subacute care can also be used to evaluate the need for chronic care. All other care is considered to be nonacute. The ISD system also includes rehabilitation,¹⁹ home care and hospice²⁰ criteria sets, which apply to inpatient rehabilitation care, professional and para-professional care in the home, and terminal, palliative care in the home or hospice facility, respectively.

The InterQual tool uses 3 body-system-dependent, rule-based criteria — severity of illness, intensity of service and discharge screens — to justify admission or continued stay or to determine if the patient is eligible for transfer or discharge.

In February 1996 a group of physicians and hospital utilization experts evaluated the instrument in the Canadian setting; only minor revisions were deemed necessary.¹³ InterQual’s “alternative level of care” criteria sets (subacute, rehabilitation and home care)^{18–20} were assessed by the appropriate care groups within the Ministry of Health and deemed appropriate for Ontario without revision.

Data abstraction, entry and processing

The study report¹³ (copies of which are available from the authors) describes the development of the data ab-



straction program; the hiring, training and evaluation of the nurse abstractors; and the process of cleaning up and managing the data.

For each day a patient was in hospital, nurse abstractors rated the acuity of the patient's condition on the basis of the ISD-AC criteria; data were recorded for each day until the patient was discharged, was designated as eligible for an alternative level of care by a physician or reached a predefined length-of-stay trim point (whichever came first). The day of admission was defined as the calendar date on which the patient entered the hospital — through either the emergency or admission department. All admissions and subsequent days of stay that met the criteria for critical care, acute care or observation were categorized as acute care days; those meeting the criteria for subacute care were categorized as subacute; and all others were designated as nonacute. If the nurse abstractor rated the patient's need for care as nonacute, the most appropriate alternative level of care for that day was selected from the appropriate ISD criteria.

Reliability

Inter-rater reliability based on agreement about the degree of acuity for all hospital days of stay was measured with the kappa statistic.²¹ After the initial test and a retest 8 to 10 weeks later, the coefficients ranged from 0.71 to 1.00. A more detailed description is available on request.¹³

Statistical analysis

The basic units of analysis were the level of acuity on

the day of admission and on subsequent days of stay. To minimize the effects of outliers, all days exceeding the 95th percentile for length of stay by primary diagnosis or meeting the criteria for alternative level of care were excluded from the analysis. We calculated the mean percentage of acute and subacute subsequent days of care for each hospital and examined the effects of diagnosis, age, peer group and region on level of acuity at admission and during subsequent days of care.

We limited our multivariate analysis to an examination of the determinants of acuity during subsequent days of stay. We used multiple linear regression with the proportion of hospital days on which acute or subacute care was needed as the dependent variable. The initial model included level of acuity on admission, age and diagnosis or procedure. Because there were more large hospitals in some regions than in others, we examined the independent effects of peer group and region in separate regression analyses that included age and diagnosis or procedure.

The statistical analysis was completed using SAS for Windows, version 6.11 (SAS Institute Inc., Cary, NC).

Results

Level of acuity on admission

Data were abstracted for 13 242 discharges from hospital. The level of acuity on admission by diagnosis is displayed in Table 1. Overall, 62.2% of admissions were considered acute, 19.7% subacute and 18.1% nonacute. Patients presenting with acute cardiovascular events (either AMI or CVA) were the most likely to require acute

Table 1: Level of care required on admission and during subsequent days of hospital stay by diagnostic or procedural category at 105 general hospital sites in Ontario in 1995

Diagnosis or procedure*	No. of patients admitted	Subsequent stay in hospital		Level of care required†					
		Patients	Days	On admission,‡ % of patients			During subsequent hospital stay,§ % of days		
				A	S	N	A	S	N
AMI	1 826	1 817	13 854	96.2	1.8	2.0	41.5	36.8	21.7
CHF	2 085	2 008	14 595	39.7	39.7	20.6	8.9	55.5	35.6
COPD	1 777	1 719	13 298	38.1	39.3	22.6	11.9	52.2	35.9
CVA	1 596	1 567	26 085	84.0	7.5	8.5	27.3	41.2	31.5
Pneumonia	1 965	1 917	13 501	35.5	43.0	21.5	14.0	51.6	34.4
Hip or knee replacement	1 303	1 304	12 523	56.5	2.4	41.1	30.1	46.5	23.4
Hysterectomy	1 484	1 413	4 762	88.0	0.5	11.5	47.2	8.7	44.1
TURP	1 206	1 104	4 250	73.6	3.8	22.6	58.3	10.9	30.8
Total	13 242	12 849	102 868	62.2	19.7	18.1	27.5	40.2	32.3

*AMI = acute myocardial infarction, CHF = congestive heart failure, COPD = chronic obstructive pulmonary disease, CVA = cerebrovascular accident, TURP = transurethral resection of the prostate.
 †A = acute, S = subacute, N = nonacute.
 ‡Among 13 242 patients.
 §Among 12 849 patients who stayed in hospital for more than 1 day; excludes days for which patient was designated as needing an alternative level of care and days beyond the predefined trim point.



care on admission among the medical diagnostic categories we considered. Only 35% to 40% of patients with pneumonia, CHF or COPD met the ISD criteria for acute care at admission. However, approximately 40% of the patients who did not meet the criteria for acute care required subacute care; the remaining approximately 20% were eligible for nonacute care in an alternative setting.

Patients who underwent elective surgery the day they were admitted automatically met the criteria for acute care. Ninety-six percent of the patients who were rated as requiring nonacute care on admission for hip or knee replacement (who accounted for 41.1% of those procedures) were admitted at least 1 day before surgery.

The percentage of admissions for which acute care was required declined with age, from 73.6% for patients 35 to 64 years of age to 49.4% for those 85 years of age and older (Table 2). Admissions for which subacute care was needed showed the inverse relation. The proportion of admissions for which nonacute care was required was relatively constant with age.

Overall there was a 24.2% range in the proportion of patients of different age groups who required acute care on admission. Between 61.0% and 69.5% of patients admitted to hospitals with 100 beds or more required acute care. Smaller hospitals (PG6 and PG7) had lower proportions of admissions for acute care (45.5%–58.5%) and higher proportions of admissions for subacute care (22.8%–32.4%), but admissions for nonacute care varied little by peer group. In northern Ontario about half of all admissions met the ISD criteria for acute care and about a third met those for subacute care, whereas in southern Ontario more than 60% of admissions met the criteria for acute care and less than 20% met those for subacute care. The percentage of admissions requiring nonacute care ranged from a high of 25% in southwestern Ontario to a low of 12% in central Ontario, which contains Metropolitan Toronto and proportionately more PG1 and PG2 hospitals than other regions.

Level of acuity on subsequent days of stay

For this analysis, we excluded 393 patients who were discharged the same day they were admitted, so subsequent days of stay were rated for level of acuity for 12 849 patients. On average, acute care was required on 27.5% of subsequent days, subacute care on 40.2% and nonacute care on 32.3%. The proportion of acute care days decreased as length of stay increased (Fig. 1). Again, the proportion of days on which subacute care was required followed the opposite pattern, increasing with length of stay, whereas the overall proportion of days on which nonacute care was required was relatively constant at about 30%. Seventy-one percent of the 40 548 subacute days and 50% of the 30 784 nonacute days occurred within the first 7 days of hospital stay.

The acuity ratings of subsequent days varied markedly by diagnosis (Table 1) and by level of acuity on admission. The proportion of subsequent days on which acute care was required by patients with AMI and CVA was markedly higher if they had been rated as needing acute care on admission (39.0%) than if they had not (14.4%). The same was true for patients with cardiorespiratory diagnoses (CHF, COPD or pneumonia; 25.7% v. 2.8%). However, for patients who underwent surgery, the level of care needed on subsequent days was unrelated to the level of acuity on admission, usually because these patients were admitted the day before the procedure.

The proportion of subsequent days of hospital stay meeting ISD criteria for subacute care was highest among the patients with CHF (55.5%), COPD (52.2%) and pneumonia (51.6%) and lowest among those admitted for TURP (10.9%) and hysterectomy (8.7%). As the age of patients increased, the proportion of subsequent days on which acute care was required decreased and the proportion of days on which subacute care was required increased (Table 2).

The level of acuity on admission, age and diagnosis or

Table 2: Level of care required on admission and during subsequent days of hospital stay by age

Age, yr	No. of patients admitted	Subsequent stay in hospital		Level of care required					
				On admission,* % of patients			During subsequent hospital stay,† % of days		
				A	S	N	A	S	N
18–34	374	346	1 279	62.6	18.7	18.7	38.2	26.3	35.5
35–64	3 890	3 756	21 325	73.6	12.4	14.0	35.7	31.3	33.0
65–74	3 664	3 554	28 614	61.6	18.3	20.1	27.0	42.0	31.0
75–84	3 683	3 607	33 484	56.3	24.1	19.6	22.9	46.0	31.1
≥ 85	1 628	1 586	18 166	49.4	30.5	20.1	17.3	47.1	35.6
Total	13 239	12 849	102 868	62.2	19.7	18.1	27.5	40.2	32.3

*Among 13 239 patients for whom birth date was known.

†Among 12 849 patients who stayed in hospital for more than 1 day; excludes days for which patient was designated as needing an alternative level of care and days beyond the predefined trim point.

procedure were among the predictors of need for acute care, as opposed to subacute or nonacute care, on subsequent days of stay. We did not include acuity on admission in our regression analysis because, with decreases in appropriate supports in the health care system, physicians could admit fewer patients in need of subacute and nonacute care. We examined the residual effects of age and diagnosis or procedure, both of which remained highly

significant. These 2 predictors of level of care needed on subsequent days of stay explained 29% of the overall variance for acute care and 22% of the overall variance for subacute care (Table 3).

There was little variation in level of care required during subsequent days of stay among hospitals in PG1 to PG5 (all with capacities of at least 100 beds). Hospitals with capacities of less than 100 beds (PG6 and PG7) were

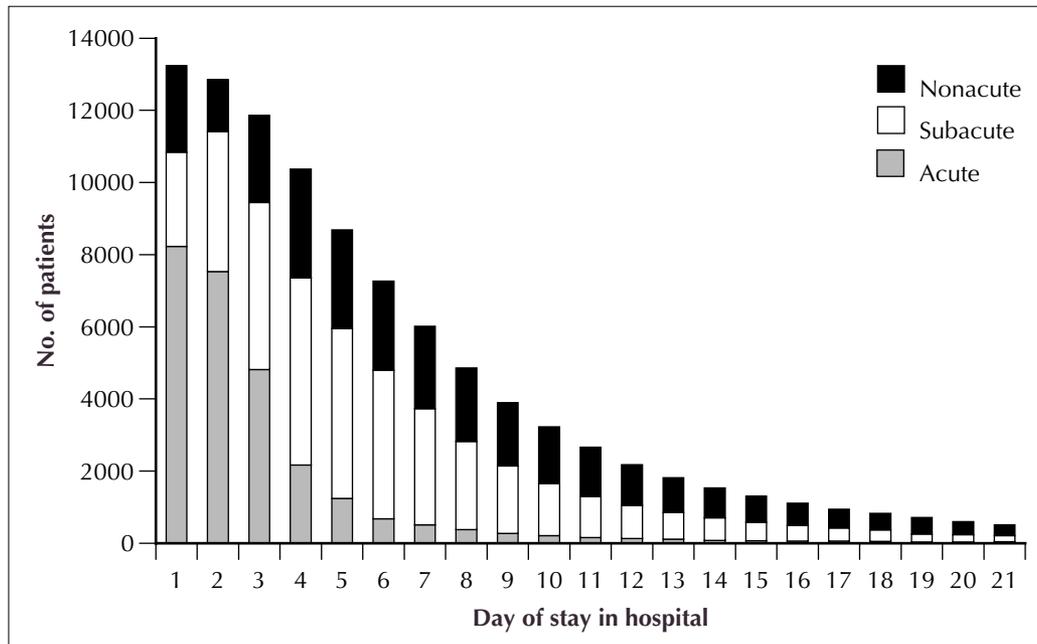


Fig. 1: Level of care needed for each day spent in an Ontario acute care hospital by 13 242 patients with 1 of 8 high-volume, high-variability diagnoses or procedures.

Table 3: Multiple regression model for estimating the effects of age and diagnosis on the proportion of hospital days meeting ISD criteria* for subacute and acute care

Variable	Level of care needed; % of days (and 95% CI)†‡			
	Acute		Subacute	
Intercept§	49.96	(46.88 to 53.04)	31.66	(27.98 to 35.33)
Age, yr				
35–64	–6.05	(–8.95 to –3.15)	3.39	(–0.07 to 6.84)
65–74	–9.52	(–12.50 to –6.54)	6.11	(2.54 to 9.67)
75–84	–10.43	(–13.41 to –7.45)	7.23	(3.67 to 10.79)
≥ 85	–12.83	(–15.95 to –9.71)	5.79	(2.05 to 9.52)
CHF	–30.81	(–32.48 to –29.14)	17.72	(15.72 to 19.72)
COPD	–28.88	(–30.60 to –27.16)	14.79	(12.73 to 16.85)
CVA	–12.93	(–14.69 to –11.17)	3.54	(1.43 to 5.64)
Pneumonia	–27.17	(–28.86 to –25.48)	14.76	(12.75 to 16.77)
Hip or knee replacement	–10.68	(–12.52 to –8.84)	9.06	(6.85 to 11.27)
Hysterectomy	3.10	(1.22 to 4.98)	–26.31	(–28.55 to –24.07)
TURP	17.59	(15.61 to 19.58)	–26.57	(–28.09 to –24.24)

Note: An example of how to read this table — A typical group of 60-year-old patients with CVA would be expected to need acute care on 30.98% of days in hospital [49.96 + (–6.05) + (–12.93)]; subacute care on 38.59% of days [31.66 + 3.39 + 3.54]; and nonacute care on 30.43% of days [100 – (30.98 + 38.59)].

*ISD criteria: InterQual Inc. Intensity of Service, Severity of Illness and Discharge Screens criteria sets.¹⁷

†CI = confidence interval.

‡R² = 0.29 for acute care and 0.22 for subacute care.

§Intercept represents the proportion of days on which acute or subacute care was needed for patients in the reference group. The reference group consisted of patients less than 35 years of age with AMI.



associated with a higher proportion of subacute days of stay on univariate analysis, but this difference disappeared when we performed a multivariate analysis including age and diagnosis or procedure (data available on request). The adjusted proportion of days on which subacute care was needed was highest in northern Ontario and similar in southeastern Ontario, but significantly lower in central Ontario (-3.3% , $p < 0.001$) and central western Ontario (-4.1% , $p < 0.001$). The lowest proportion of subacute days was found in southwestern Ontario (-8.0% , $p < 0.001$); however, this finding was due to a higher proportion of nonacute care days rather than a higher proportion of acute care days.

Interpretation

Our findings confirm that many Canadian patients need subacute care — a category of care in which they require at least 4 hours of professional services each day and treatment by a physician-led multidisciplinary team. The high proportion of patient days in Ontario on which subacute care was needed suggests that earlier studies may have overstated the inefficiency of Canadian hospitals by not considering this category of care.

We found that for patients with a medical condition the level of acuity on admission was an important predictor of level of acuity during the remainder of the hospital stay. The requirement for subacute care on admission and during subsequent days of hospital stay was correlated with age and diagnosis, whereas the requirement for nonacute care had little correlation with either of these factors. Older patients admitted with cardiorespiratory disease were much more likely to require subacute care during their hospital stay. These findings confirm what would reasonably be expected (i.e., that outpatient management or early discharge after initial inpatient treatment is more difficult for an 80-year-old patient with pneumonia than for a middle-aged patient with the same disease). Initiatives to enhance the efficient use of acute care hospital resources must include an intermediate tier of care, either at home or within an institutional setting, for older people and patients with chronic conditions who may require more time to return to their preadmission status.

From a list of 13 possibilities,¹³ the nurse abstractors identified “waiting for diagnostic tests or procedures” and “comorbidity, age or distance from the hospital” as the most frequent reasons for nonacute admissions among the 5 medical conditions reviewed. Screening these high-risk patients in the emergency department may be an effective method for identifying and intervening in the treatment plan of patients likely to require nonacute care during subsequent days of stay. However about 40% of patients in these diagnostic categories were designated as needing

subacute rather than nonacute care on admission. Therefore, some institutional beds will likely be needed for the initial care of these patients.

Despite the high proportion of subacute admissions and days of care, the proportion of nonacute admissions and days of care was substantial. Admitting only patients that require acute care is neither an attainable nor a reasonable goal. However, even assuming that all subacute admissions and stays were unavoidable, 18% of admissions and more than 30% of subsequent days of care fell into the nonacute category. This confirms that there was considerable room to improve the efficiency of Ontario's hospitals in late 1995. For example, most patients awaiting surgery who were rated as requiring nonacute care on admission were admitted the day before elective surgery. Patients living long distances from hospital may benefit from local hostelling arrangements.

Our study had several limitations. The diagnoses and procedures we chose to review represented only 16.4% of all adult cases requiring acute care and only 21.8% of days of subsequent care in fiscal year 1995–96 in Ontario. However, our results may not apply to other diagnoses or procedures. The degree to which the results can be generalized to nonparticipating hospitals is also uncertain. Although the criteria we used to categorize level of care needed are widely accepted and routinely used to help hospitals manage beds in Canada and the United States, no empirical evidence exists to define which blend of institutional acute, subacute and nonacute care is optimum.

In conclusion, the data from this audit of 105 acute care sites suggest that in 1995 inpatients requiring subacute care accounted for a substantial proportion of days on which nonacute care was delivered in Ontario's general hospitals. Models for delivering subacute care are well-established in the US and are being introduced in Alberta. Our findings suggest a need to evaluate the efficiencies that can be achieved by introducing a category of subacute care into the Canadian health care system. Generally, efforts are needed to reduce the proportion of admissions for nonacute care and of in-hospital days for other than acute care.

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