

*This report compares 20th-century Canadian hospital and nonhospital location-of-death trends and corresponding population mortality trends. One of the chief findings is a hospitalization-of-death trend, with deaths in hospital peaking in 1994 at 80.5% of all deaths. The rise in hospitalization was more pronounced in the years prior to the development of a national health care program (1966). Another key finding is a gradual reduction since 1994 in hospital deaths, with this reduction occurring across all sociodemographic variables. This suggests nonhospital care options are needed to support what may be an ongoing shift away from hospitalized death and dying.*

**LOCATION OF  
DEATH IN CANADA**  
A Comparison of 20th-Century  
Hospital and Nonhospital  
Locations of Death and  
Corresponding Population  
Trends

DONNA M. WILSON  
HERBERT C. NORTHCOTT  
CORRINE D. TRUMAN  
SUSAN L. SMITH  
MARJORIE C. ANDERSON  
*University of Alberta*  
ROBIN L. FAINSINGER  
*Royal Alexandra Hospital*  
MICHAEL J. STINGL  
*University of Lethbridge*

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**P**roviding the right care in the right place is not simple. This is particularly true when a person is terminally ill or dying (Curtin, 1996). The seriousness of this concern is illustrated on one hand by considerable advances in both curative and noncurative, or palliative, care (Canadian Palliative Care Association, 1997; Turner et al., 1996) and on the other hand by an increasingly obvious requirement to use health services more wisely (Curtin, 1996; Gray, 1998; Kaplow, Charest, & Benaroya, 1998; Lavis & Anderson, 1996; Litwin & Lightman, 1996; National Forum on Health, 1997; Wolff & Schlesinger, 1998).

Some reports indicate hospital deaths are common in Canada (Ajemian, 1992; Fainsinger, Bruera, & MacMillan, 1997; Heyland, Lavery, Tranmer, Shortt, & Taylor, 2000) and in other developed countries (Brock & Foley, 1998; Costantini et al., 1999; H. Davis, Schoendorf, Gergen, & Moore, 1997; Field & James, 1993; Grande, Addington-Hall, & Todd, 1998; B. M. Thomas, Starr, & Whalley, 1997; Tolle, Rosenfeld, Tilden, & Park, 1999). Yet, hospital deaths can be problematic for a number of reasons. First and foremost is the concern that the care of terminally ill and dying persons is treatment oriented as opposed to comfort oriented (Ajemian, 1992; Curtin, 1996; Heyland et al., 2000; Wilson, 1997, 2000). Other concerns include the high cost of hospital care (Health Canada, 1996) and the opportunity costs of using acute care hospital beds for care that can be provided elsewhere (National Forum on Health, 1997).

As the care provided to dying persons is extensively influenced by factors inherent in the place of death and no description of Canadian location-of-death trends is available for planning or policy purposes, a research investigation was conducted to identify 20th-century Canadian locations of death and corresponding population mortality trends. This report compares hospital and nonhospital locations of death and corresponding population mortality trends.

## **RESEARCH METHOD**

To compare Canadian location-of-death trends and corresponding population mortality trends, the researchers sought archived population mortality data. Although vital statistics databases were not specifically designed for the purpose of evaluating health facility utilization

and for supporting subsequent health services or health system reforms, mortality statistics have long been considered an important source of health information (G. G. Davis, 1997). Through such statistics, health officials have been informed of leading primary and secondary causes of death, public awareness has been raised over conditions leading to death, and health care policy and planning have been advanced (H. Davis et al., 1997; Laraque, Greene, Triano-Davis, Altman, & Lin-Greenberg, 1996; Nordenholtz et al., 1995; Samkoff, Hockenberry, Simon, & Jones, 1995; Shkolnikov, Leon, Adamets, Andreer, & Deer, 1998). Although some ongoing concern has been expressed about the validity and reliability of mortality records, these types of records frequently present the most accessible and complete source of population health data. A growing list of publications illustrates the diversity and usefulness of these databases as well as a current trend toward creating population databases by linking smaller ones (Backlund, Sorlie, & Johnson, 1997; Boyle & Dobson, 1995; Christenson & Johnson, 1995; Coultas & Hughes, 1996; Every et al., 1997; Gideon & Mannino, 1996; Goodin & Hanzlich, 1997; Guite & Burney, 1996; Hanzlich, 1996; Kraus, Peek, Silberman, & Anderson, 1995; Mackenbach, Kunst, Lautenbach, Oei, & Bijlsma, 1997; Maudsley & Williams, 1996; Messite & Stellman, 1996; Myers & Farquhar, 1998; Nordenholtz et al., 1995; Rushton & Romaniuk, 1997; Samkoff et al., 1995; Sheddon & Williams, 1997; B. M. Thomas et al., 1997; Wolleswinkel-Van den Bosch, Van Pollel, Tabeau, & Mackenbach, 1998; Wood, Sallar, Schechter, & Hogg, 1999).

To this end, a Statistics Canada computerized mortality database containing aggregate data on all deaths in Canada was purchased following research ethics approval, administrative approval of access by Statistics Canada, and notification of research grant funding (see Authors' Note). Statistics Canada is a national government organization that gathers, stores, and often analyzes data on a wide range of subjects important to the health and well-being of Canada and its peoples. As this database only contained 1950-1997 data, 1900-1950 provincial data were sought. A second computerized database, identifying location of death for residents of British Columbia from 1927 through 1950, was obtained without charge on request from that province's Department of Vital Statistics. A third database, identifying location of death for residents of Alberta, was constructed by the principal investigator during a search of archived 1905-1950 annual

hospital and vital statistics records. These provincial databases are limited to the annual incidences of hospital deaths and total deaths in province.

The Statistics Canada mortality database is a compilation of computerized death certificate data obtained on an annual basis from all Canadian provinces and territories. The data variables include year of death, province/territory where the death occurred, birthplace (Canada or other country of origin), gender, age at time of death, marital status, location of death (hospital or various other sites), and primary cause of death (International Classification of Diseases, ninth version [ICD-9] code). Data were obtained on 7,851,499 deceased persons, covering all deaths from 1950 through 1997, a span of 48 years. In most instances, data were complete or nearly complete. Location of death had 6.1% missing data; only marital status (6.7%) and birthplace (26.9%) had higher rates of missing data. The missing location-of-death data were primarily concentrated in certain years and provinces. Location of death was not reported by any province or territory in 1965, British Columbia did not report location-of-death data in 1961-1962 and 1993-1996, Quebec did not report location-of-death data in 1975-1977 and 1988-1989, and Newfoundland did not begin reporting data until 1953.

Another potential problem with the Statistics Canada and archived provincial data concerns the issue of a death registered in an acute care hospital or continuing care facility involving a stay of days or weeks or only minutes, as in the case of a person who is pronounced dead on or shortly after arrival. Although this is an important issue for quantifying the extent of utilization, resources are used whenever health facilities are accessed. The intention to use health care resources through seeking admission is a related consideration. Another issue is that the degree of inconsistency in reporting practices from province to province and by province over the years is not known.

For this reason, caution was taken not to overinterpret minor fluctuations in data. Analysis was also largely confined to simple descriptive statistics, with comparisons normally limited to *t* tests (bivariate ratio or interval data), ANOVA (multivariate ratio or interval data), and chi-square analysis (ordinal or nominal data). The .05 probability standard was used in determining if differences between or among groups were statistically significant.

**TABLE 1**  
**Deaths in Canada, 1950-1997**

	<i>All Deaths</i>	<i>1950 Deaths Only</i>	<i>1994 Deaths Only</i>	<i>1997 Deaths Only</i>
All deaths ( <i>N</i> )	7,851,499	123,590	201,499	216,061
Age (years)				
Mean	65.7	56.1	71.7	72.8
Median	72	66	76	76
Standard deviation	23.0	28.5	18.3	17.7
Age (years)				
< 65	34.4	46.3	24.5	22.4
65+	65.6	53.7	75.5	77.6
Birthplace				
In Canada	72.4	72.1	76.5	75.7
Outside Canada	27.6	27.9	23.5	24.3
Gender				
Male	56.4	56.4	52.9	51.7
Female	43.6	43.6	47.1	48.3
Marital status				
Married	47.2	44.5	45.2	44.4
Widowed	30.7	26.2	34.4	35.8
Single	19.2	29.0	14.6	13.5
Divorced	2.5	0.3	5.2	5.5
Separated	0.4	0.0	0.7	0.7
Marital status				
Married	46.9	45.5	45.2	44.4
Not married	53.1	55.5	54.8	55.6

NOTE: Numbers given are percentages unless otherwise noted. Missing data excluded from analysis.

## FINDINGS

### STATISTICS CANADA DATA

*Total deaths.* In keeping with a growing population and despite an ongoing decline in the mortality rate throughout the 20th century (Statistics Canada, 2000), the total number of deaths each year increased steadily. In 1997, there were 216,061 deaths, a 75% increase over 1950 (see Table 1). An increasing number of deaths in every province and territory was also found, with Ontario consistently having the highest number and proportion of Canadian deaths each year (38.0% over 48 years), followed by Quebec (23.9% over 48 years). The sparsely populated Yukon Territory and Northwest Territories

(now divided into the Northwest Territories and Nunavut) had the lowest numbers and thus proportions of Canadian deaths each year and over all 48 years (0.1%, respectively).

*Location of death.* Each year since 1950, more deaths were recorded as having taken place in hospitals than in any other single place or all other places combined (Table 2). Just more than two thirds of all deaths (68.7%) took place in hospitals over the 48-year period (missing data excluded from analysis). A long-standing hospitalization-of-death trend was also found. In 1950, hospitals accounted for 50.9% of death places, followed by an ongoing increase in incidence until 1994, when hospital deaths peaked at 80.5% (see Figure 1). A decline in hospital deaths followed 1994, with deaths in hospitals reaching 75.3% in 1997 from 78.0% in 1995 and 76.3% in 1996. Regardless of this decline, in 1997, three quarters of all deaths were recorded as having occurred in acute care hospitals (compared to 2.9% in continuing care facilities, 20.7% in all other known locations combined, and 4.4% in places either unknown or unrecorded).

Regardless of the recent decline in hospital deaths, there was a significant increase over the 48 years in the proportion of deaths in hospitals compared to deaths in all other locations combined (missing data excluded,  $p < .001$ ). Furthermore, linear regression analysis indicated that from 1950 to 1964, the slope of the line fitted to the percentage of deaths occurring in hospitals reflected an average yearly increase of 1.20% (95% confidence interval equals 1.05%, 1.35%). From 1966 to 1994, the slope of the line reflected an average yearly increase of only 0.45% (95% confidence interval equals 0.37%, 0.49%). These slope coefficients were substantially and significantly different from each other ( $p < .000$ ), indicating that the hospitalization-of-death trend was more pronounced from 1950 to 1964 than it was from 1966 to 1994 (see Figure 1).

Although an overall decline in hospital deaths followed 1994, provincial and territorial data show it began much earlier in some regions. Saskatchewan was the first province to record an ongoing decline in hospital deaths after hospital deaths peaked in 1981 at 70.5%. A decline in hospital deaths was subsequently observed in all other provinces and territories.

Considerable cross-Canada variation in the use of hospitals for death and dying purposes was also found. The Northwest Territories

**TABLE 2**  
**Location of Deaths in Canada, 1950-1997**

	<i>All Deaths</i> (N = 7,363,454)		<i>1950 Deaths Only</i> (n = 108,060)		<i>1994 Deaths Only</i> (n = 199,255)		<i>1997 Deaths Only</i> (n = 206,620)	
	<i>Hospital</i>	<i>Nonhospital</i>	<i>Hospital</i>	<i>Nonhospital</i>	<i>Hospital</i>	<i>Nonhospital</i>	<i>Hospital</i>	<i>Nonhospital</i>
All deaths								
Percentage	68.7	31.3	50.9	49.1	80.5	19.5	75.3	24.7
<i>n</i>	5,060,692	2,302,762	54,993	53,067	160,325	38,930	155,616	51,004
Age (years)								
Mean	66.1	65.1	52.1	61.0	71.8	72.0	72.9	73.9
Median	72	71	63	70	75	77	76	79
Standard deviation	22.6	23.7	29.3	26.9	17.7	20.2	19.8	23.0
Age (years)								
< 65	66.3	33.7	58.8	41.5	78.7	21.3	74.0	26.0
65+	70.0	30.0	44.1	55.9	81.0	19.0	75.7	24.3
Birthplace								
In Canada	69.7	30.3	47.8	52.2	80.5	19.5	75.5	24.5
Outside Canada	72.3	27.7	58.8	27.9	79.6	20.4	72.7	27.3
Gender								
Male	68.4	31.6	52.8	47.2	81.4	18.6	76.9	23.1
Female	69.2	30.8	48.4	51.6	79.4	20.6	73.7	26.3

*(continued)*

TABLE 2 Continued

	<i>All Deaths</i> (N = 7,363,454)		<i>1950 Deaths Only</i> (n = 108,060)		<i>1994 Deaths Only</i> (n = 199,255)		<i>1997 Deaths Only</i> (n = 206,620)	
	<i>Hospital</i>	<i>Nonhospital</i>	<i>Hospital</i>	<i>Nonhospital</i>	<i>Hospital</i>	<i>Nonhospital</i>	<i>Hospital</i>	<i>Nonhospital</i>
Marital status								
Married	54.0	46.0	48.4	51.6	85.1	14.9	80.1	19.9
Widowed	49.9	50.1	44.3	55.7	77.6	22.4	71.5	28.5
Single	65.9	34.1	60.2	39.8	74.1	25.9	69.6	30.4
Divorced	66.6	33.4	68.2	31.8	77.2	22.8	72.9	27.1
Separated <sup>a</sup>	78.8	21.2	78.8	21.2	85.1	14.9	86.2	13.8
Marital status								
Married	71.3	28.7	48.8	51.6	85.1	14.9	80.1	19.9
Not married	66.5	33.5	52.8	47.2	76.7	23.3	71.4	28.6

NOTE: Numbers given are percentages unless otherwise noted. Missing data excluded from analysis.

a. Data from 1951-1953 are missing.

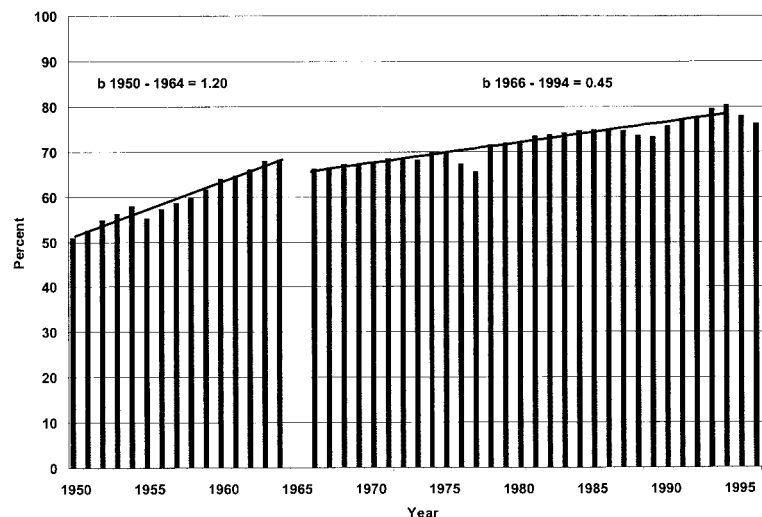


Figure 1: Hospital Deaths in Canada, 1950-1997

and Yukon Territory had the lowest incidences of hospital deaths over 48 years (34.7% and 53.2%, respectively), whereas British Columbia and New Brunswick had the highest (76.3% and 71.6%, respectively). In 1997, the Northwest Territories again had the lowest annual rate (39.0%), followed by Alberta (55.7%), whereas Quebec and British Columbia had the highest (87.4% and 77.7%, respectively).

#### STATISTICS CANADA SOCIODEMOGRAPHIC POPULATION DATA

As indicated previously, Statistics Canada variables are limited to year of death, province/territory where the death occurred, birthplace (Canada or other), gender, age, marital status, location of death, and primary cause of death (ICD-9 code). As presented next, each of these variables was compared on the basis of hospital or nonhospital location of death, with both annual and combined 48-year comparisons made. Corresponding population data analysis findings follow.

*Age.* The average age of all persons who died in hospitals or other locations over the 48 years varied significantly ( $p < .001$ ). Yet, the people who died in hospitals were only 1 year older on average (see Table

2). Some age-based variance from year to year was noted, however. From 1950 to 1963, persons younger than age 65 had a higher rate of hospital deaths each year than persons aged 65 and older (seniors). After 1963, seniors had a higher annual rate of hospital death than younger persons did. Regardless, hospital deaths peaked in 1994 for both younger persons and seniors (see Table 2), with the incidence of hospital deaths then declining for both groups. The reduction from 1994 through 1997 was greater for seniors than it was for younger persons (5.3% and 4.7%, respectively).

Corresponding population mortality data analysis was also revealing. Over 48 years, the average age of all deceased persons increased significantly ( $p < .001$ ). As indicated in Table 1, there was a 30% increase from 1950 to 1997 in the annual average age at time of death. The average age over all 48 years combined was only 65.7, yet 65.6% of all deaths were seniors (see Table 1). Deaths of seniors increased steadily from 53.7% of all deaths in 1950 to 77.6% in 1997 (see Table 1). Population aging was also illustrated by a mode age increasing from infancy (birth to age 1) for the years 1950 through 1976 to 74 years of age in 1977 and then gradually upward to 82 years of age in 1997.

*Birthplace.* Birthplace was also related to location of death. Over all 48 years combined, persons born outside of Canada had a significantly higher rate of death in hospitals than persons who were born in Canada ( $p < .001$ ). Yet, hospital deaths were common to both groups; as illustrated in Table 2, a difference of only 2.6% separated them. The incidence of hospital deaths increased for both native-born and foreign-born persons until 1994, when 80.5% of native-born Canadian deaths were taking place in hospitals compared to 79.4% of foreign-born Canadian deaths (see Table 2). The incidence of hospital deaths declined for both groups after 1994 (see Table 2), with foreign-born persons having a greater decline in hospital deaths (6.9% compared to 5.0% for native-born Canadians). It is also relevant to note that most (72.4%) deaths over the 48 years involved persons who were born in Canada (see Table 1), and that the proportion of deaths of native-born persons increased significantly over the years ( $p < .001$ ).

*Gender.* Gender was also related to location of death. Over all 48 years combined, females died significantly more often in hospitals

then men did ( $p < .001$ ). This gender difference was less than 1%, however (see Table 2). Furthermore, females did not have the highest rate of hospital deaths every year. Males had higher rates of hospitalized death in the years 1950-1955, 1987-1989, and 1991-1997. Hospital deaths peaked in 1994 for both males and females (see Table 2). Following 1994, hospital deaths declined more rapidly for females (5.7%) than for males (4.5%).

This information should also be contrasted with the finding that there are more deaths of males than females (see Table 1), a gender difference that was statistically significant each year ( $p < .001$ ) and over all 48 years combined ( $p < .001$ ). Yet, the gap in incidence of deaths by gender narrowed over time, most particularly during the 1990s. More specifically, a gender gap of 12.8% existed in 1950 (the greatest gap); by 1997, this gap had reduced to 3.8% (see Table 1).

*Marital status.* Marital status was also related to place of death. As shown in Table 2, persons who were separated at the time of death had the highest rate of hospitalized death over all 48 years combined (78.8%), followed by divorced and single persons. Widowed persons had the lowest rate of hospital deaths, although approximately half of these deaths still took place in hospitals. Differences in hospital versus nonhospital location of death rates by marital status were statistically significant each year ( $p < .001$ ) and over all 48 years combined ( $p < .001$ ).

When the categories of single, divorced, and widowed were combined and married and unmarried persons were then compared in regard to their respective hospital utilization over 48 years (see Table 2), married persons had a higher rate of hospital deaths than unmarried persons did (a difference of only 4.8%, however). This difference was significant each year ( $p < .001$ ) and over all 48 years combined ( $p < .001$ ). The hospital death rate peaked in 1994 for both married and unmarried persons (see Table 2), with a higher rate of hospitalization again among married persons. Following 1994, there was a slightly faster rate of decline in hospital deaths among unmarried persons (5.3%) than among married persons (5%). As of 1997, married persons continued to have a higher rate of hospital deaths than unmarried persons did.

Furthermore, more deaths over the 48 years involved married persons than widowed, single, divorced, or separated persons (see Table

1). However, when the categories of single, divorced, and widowed were combined for analysis, significantly more ( $p < .001$ ) deaths over the 48 years involved unmarried persons (52.8%) than married persons (47.2%). This population pattern was also evident each year ( $p < .001$ ).

*Cause of death.* The location of death also varied by cause of death. There were 999 distinct causes of death recorded over the 48 years (each a separate ICD-9 code). These ICD-9 codes were grouped into 10 commonly reported categories for analysis. The highest rate of hospitalized death over all 48 years combined was among persons who died of congenital (birth defects or congenital malformations present at birth) disorders (87.0%), followed by chronic liver diseases (84.8%) and cancer (81.1%). The lowest rate of hospitalized death and the only cause of death for which fewer than half of all deaths over the 48 years occurred in hospitals was for persons who died of injuries or suicide (40.6%). Each year, with the exception of 1950 through 1955 (when cardiovascular and respiratory disease rates were lower), deaths by injury or suicide were the least likely to occur in hospitals. Similarly, congenital disorders had the highest incidence of hospital deaths each year.

Regardless, the rate of hospitalized death increased gradually each year until the 1990s for all 10 cause-of-death categories. Hospitalized infectious and parasitic disease deaths peaked first, in 1991, at 83.2% of the total, followed by hospitalized cancer deaths, which peaked in 1993 at 85.2%. In 1994, the hospitalized death rate peaked for the 8 other cause-of-death categories (ranging from 61.0% for injuries and suicides to 95.0% for congenital disorders). An ongoing decline in hospital death rates was subsequently noted after the peak for all 10 cause-of-death categories. The decline in hospital death rates from 1994 through 1997 was greatest for the *all other* category (from 80.2% to 71.8%, or 8.4%), followed closely by the nervous system/sense organ category (from 73.9% to 66.2%, or 7.7%). The smallest decline was for infectious and parasitic diseases (from 80.3% to 79.6%, or 0.7%), followed by congenital disorders (95.0% to 92.6%, or 2.4%) and respiratory disorders (from 81.5% to 78.7%, or 2.8%). In 1997, the lowest hospital death rate remained among those persons who died of injury or suicide (56.5%), whereas the highest hospital death rate

remained among those persons, mainly infants and children, who died of congenital disorders (92.6%).

It is also notable that nearly half of all deaths over the 48 years were considered to be due to cardiovascular diseases (45.2%). Although the incidence of death by cardiovascular diseases declined considerably over time, from 45.5% of all deaths in 1950 to 36.8% in 1997, after peaking in 1966 and 1967 at 50.2%, it remained the most common cause of death in 1997 (36.8%). The incidences of death from infectious and parasitic diseases (from 3.1% of deaths in 1950 to 1.2% of deaths in 1997) and all other disorders (from 12.1% in 1950 to 10.9% in 1997) also declined. The greatest decline, however, was among congenital disorders (from 8.7% of deaths in 1950 to 0.9% in 1997). Over the same period of time, the incidences of other disorders increased: cancer (15.1% to 27.3%), chronic liver (0.5% to 1.9%), diabetes (1.3% to 2.7%), nervous system and sense organ disorders (1.8% to 3.3%), respiratory disorders (6.6% to 9.4%), and injury or suicide (5.3% to 5.7%).

#### ALBERTA AND BRITISH COLUMBIA ARCHIVED DATA

Archived pre-1950 British Columbia and Alberta provincial data similarly illustrate a hospitalization-of-death trend. In 1927, the first year computerized location-of-death data were available for British Columbia, 43% of all deaths were recorded as having occurred in hospitals. A steady increase in hospital deaths followed; by 1950, 61% of all deaths in British Columbia were recorded as having occurred in hospitals. British Columbia hospitals in those years were defined as institutions providing inpatient medical and/or surgical care as well as care for persons suffering from tuberculosis and mental diseases. Institutions that only provided custodial or domiciliary care were not considered hospitals.

Hospitals were similarly defined in early 20th-century Alberta government documents. Total hospital deaths and total deaths in Alberta did not begin to be recorded until 1930. In 1930, 39% of all deaths in Alberta took place in hospitals. Following 1930, a steadily increasing number and percentage of deaths took place in hospitals. By 1950, 51% of all Alberta deaths were recorded as having occurred in hospitals.

## DISCUSSION AND IMPLICATIONS

Despite some database and data limitations, the 1950-1997 Statistics Canada mortality data and pre-1950 archived provincial data provide useful information. One of the most important findings was a pronounced and sustained hospitalization-of-death trend across all variables. By the middle of the 20th century, hospitals were the most common site of death in Canada, with the hospital rate increasing until 1994. Although statistically significant population differences were found when hospital and nonhospital death rates were compared, these do not clearly distinguish location of death. The descriptive comparisons of location of death for married and unmarried persons, for young and old persons, and for all other tested variables revealed more similarities than dissimilarities in the use of hospitals as death places.

Interestingly, the rise in hospital death rates was more rapid prior to the 1966 passage of the federal Medicare Act that created universal access to hospital, diagnostic, and medical care than it was after 1966 when free hospital care was assured to all Canadians. This finding suggests that rising hospital utilization contributed to the development of Canada's Medicare system.

In short, and with the possible exception of deaths due to injury or suicide, hospital deaths have been common across Canada during much of the 20th century. All other sites, most particularly continuing care facilities, are clearly secondary in incidence and thus significance. As much of the care immediately preceding death also takes place in hospitals, with this care of short or long duration, it is apparent that hospitals assumed crucial social and health care roles in regard to death, dying, and end-of-life care.

Among other considerations, it is important to determine if hospitals are appropriate places for end-of-life care. In Canada, there has been a declining number of acute care beds despite population increases since the 1980s (Tully & Saint-Pierre, 1997). During the mid- to late 1990s, 25% of acute care beds across Canada were closed to reduce government expenditure (Wilson, 1996). Using scarce beds for care that can be provided elsewhere is a concern. Another concern is that a literature review found that the availability of hospital beds influences their use for end-of-life care purposes (Grande et al., 1998). Tolle et al. (1999) directly reported that the "use and availability of

beds in acute care hospitals has been confirmed to be the principal determining factor in location of death" (p. 681).

In Canada, hospitals are not often or openly considered by the public or by the nurses, physicians, or administrators who work there as places of death and dying (Roy, 1999). Only approximately 1,000 of the 135,000 current acute care hospital beds across Canada are dedicated to palliative care (Canadian Healthcare Association, 1998; Health Canada Working Group, 1997). Although palliative care can be provided in any hospital bed, the majority of hospitals in Canada today do not have palliative care teams or palliative care programs to plan care for dying persons (Health Canada Working Group, 1997; Roy, 1999). This, along with concerns that end-of-life care in hospitals is often treatment oriented (Ajemian, 1992; Curtin, 1996; Heyland et al., 2000; Wilson, 1997, 2000), raises the need for investigations of the efficacy of hospital-based end-of-life care.

It is also relevant to note that some deaths in hospitals are unexpected. Sudden heart attacks, strokes, and other severe disorders, which are currently responsible for an estimated 20% to 25% of deaths in Canada (Heart and Stroke Foundation, 1998; S. P. Thomas & Hruddy, 1997), may unexpectedly cause death in hospitals. However, deaths in Canada and other developed nations are increasingly less premature and unexpected (Kane, 1996). Since the mid-1950s, an increasing proportion of deaths in Canada has resulted from progressive noncurable or chronic conditions and aging as opposed to acute curable illnesses (Statistics Canada, 2000). Given the high rate of death in Canadian hospitals, many hospital deaths are likely to be anticipated and unpreventable. In these cases, end-of-life care could take place in another location. Alternatively, dying needs to be openly acknowledged and better addressed in hospitals.

The relatively recent but notable reduction in hospital deaths across Canada is another finding of interest. Although death still takes place more often in hospitals than in all other places combined, a reduction in hospital deaths is important to monitor and understand, if not foster. From 1994 to 1997, this reduction involved all persons who died, regardless of province of residence, age, gender, or any other available sociodemographic characteristic. Yet at the same time, it was more pronounced among females, seniors, unmarried persons, persons who were not born in Canada, and persons suffering from nervous system/sense organ (including multiple sclerosis and amyotrophic lateral

sclerosis) or other disorders (including failure to thrive or undiagnosed conditions). These people are normally considered more vulnerable to hospitalization. In contrast, Grande et al.'s (1998) literature review found persons who die at home and access palliative home care are typically younger, male, socioeconomically advantaged, and possessing informal caregiver networks. Other studies suggested similar patient-related factors as influences on location of death (Brock & Foley, 1998; Costantini et al., 1999; H. Davis et al., 1997; Field & James, 1993; Grande et al., 1998; B. M. Thomas et al., 1997). A personal desire to avoid hospital care, as established by Tolle et al. (1999) through interviewing Oregonians, could also influence location of death. Sadly, Grande et al.'s (1998) literature review found few people who want to die at home are able to do so.

Regardless, the reduction since 1994 in hospital deaths raises the issue of nonhospital support for dying persons. Concern over an unfunded or unsupported shift of care to the home is already apparent in Canada and other developed countries (Robinson, 1997). An increase in the number and scope of community-based palliative care programs is occurring in Canada, although these programs are already said to be inadequate for meeting current needs (Health Canada Working Group, 1997). Similarly, home care has been deemed inadequate for meeting the current personal care needs of community-dwelling Canadians (Wilkins & Park, 1998), let alone future needs of an aging population (Statistics Canada, 2000).

In conclusion, three national and provincial mortality databases provided a useful understanding of historic and current mortality trends. The findings of this investigation may be useful for forecasting or perhaps mitigating the future. For this reason, the recent decline in hospital deaths across Canada, following what can only be described as a pronounced and long-standing hospitalization-of-death trend, is of particular interest. Whether or not this reduction signals the beginning of a continuing shift away from hospitalized death should become a major focus of attention. It is possible that a shift away from the hospital is occurring with little or no direct intervention. It is more likely, however, given the long-standing practice of hospitalized death and limited support for community-based home palliative care in Canada (Chochinov & Kristjanson, 1998; McWhinney, Bass, & Orr, 1995) that a concerted effort to support nonhospital dying and death will be needed in the challenging years ahead.

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