

Hysterectomy, 1981/82 to 1996/97

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Abstract

Objectives

This article examines national and provincial trends in hysterectomies from 1981/82 to 1996/97 among women aged 35 or older.

Data sources

Data for 1981/82 to 1994/95 were obtained from the Hospital Morbidity File maintained by Statistics Canada; for 1995/96 and 1996/97, from the Canadian Institute for Health Information. Supplementary data are from the 1998/99 National Population Health Survey.

Analytical techniques

Descriptive analyses present hospitalization rates for hysterectomy, the percentage performed vaginally, and average length of stay. A hierarchy of indications was used to establish the main reason for hysterectomy. Confidence intervals were calculated to determine significant changes over time and between provinces and the national level.

Main results

From 1981/82 to 1996/97, the hysterectomy rate declined; the proportion performed vaginally increased; and average length of stay for a hysterectomy decreased. These trends generally characterized each province, although there were substantial provincial differences in rates, procedures, and average length of stay.

Key words

hospital separation records, hospital utilization, length of stay, surgical rates, women's health

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In Canada, the hysterectomy rate per 100,000 women aged 35 or older has declined sharply since the early 1980s. To some degree, this may be attributable to the development of alternatives in the treatment of gynecological problems.¹⁻⁵ As well, women's desire for less aggressive means of treatment may have produced a shift toward more careful patient screening and outpatient management of conditions that at one time might have resulted in a hysterectomy.^{6,7}

While the hysterectomy rate fell in each province, interprovincial variations remained substantial. Regional differences in hysterectomy rates are not unique to Canada; they have been noted in the United States,⁸⁻¹³ Britain¹⁴ and Australia.¹⁵ Such geographic variations cannot be attributed solely to differences in age distribution or in the incidence or risk of uterine disease.^{12,16} The primarily elective nature of hysterectomy suggests that other factors may be involved.

Rates of surgery will tend to vary when the indications for a specific procedure are discretionary.¹⁷ This is the case

Methods

Data sources

Hospital data are from Statistics Canada's Hospital Morbidity File for fiscal years 1981/82 to 1994/95, and from the Canadian Institute for Health Information for 1995/96 and 1996/97. This information comes from the admission/separation form completed by hospitals at the end of each patient's stay when the patient is separated as a discharge or a death. The file contains data on all inpatient cases that were separated from general and allied special care hospitals during the period.

Based on the *Canadian Classification of Diagnostic, Therapeutic and Surgical Procedures (CCP)*, hysterectomy was defined as the presence (in the primary or secondary admission diagnoses) of codes 80.2 and 80.3 for abdominal hysterectomy; 80.4 for total or subtotal vaginal hysterectomy; and 80.5 to 80.7 for radical hysterectomy.¹⁸ These codes correspond to the clinical modification of the *International Classification of Diseases, Ninth Revision (ICD-9-CM)* of 68.3 to 68.4 for abdominal hysterectomy, 68.5 for vaginal hysterectomy, and 68.6 to 68.8 for radical hysterectomy.¹⁹

Supplementary data on the prevalence of hysterectomy are from the 1998/99 National Population Health Survey.²⁰

Provincial estimates of the adult female population were obtained from Statistics Canada's Demography Division.

Analytical techniques

Because hysterectomy is relatively uncommon at younger ages, this analysis pertains only to women aged 35 or older.

Descriptive analyses present rates and percentages. Hospitalization rates were calculated by dividing the number of hysterectomy separations of women aged 35 or older by the population estimates for that age group and multiplying by 100,000. Age-adjusted rates were calculated by the direct method using the age distribution of women aged 35 or older in 1996. Average length of stay was calculated by dividing the total number of days that women admitted for hysterectomy spent in hospital by the number of separations.

Confidence intervals were calculated to assess the variation in rates between 1981/82 and 1996/97 for each province; two-sided tests were performed to determine statistically significant differences in the age-adjusted rates.²¹ Comparisons of rates for each province with the national level were made for 1981/82 and 1996/97. Two-tailed tests were used to test mean differences in length of stay between 1981/82 and 1996/97, and between each province and the national level.

To determine the indications for hysterectomy, a hierarchy established by Hall and Cohen¹⁷ was used. Indications for surgery were identified with the use of ICD-9-CM diagnostic codes and were

collapsed into six categories: cancer, fibroids, endometriosis, uterine prolapse, menstrual hemorrhage and pain, and other. Because some records had more than one indication, a hierarchic rule was used to classify the main indication for hysterectomy in each patient. If any of the diagnosis codes indicated a malignant or pre-malignant tumour, the indication assigned to that patient was "cancer." For the remaining records, if any of the codes indicated "fibroids," that was the indication assigned, followed by "endometriosis," "prolapse," and "menstrual hemorrhage and pain." Cases lacking one of these five indications were assigned to the "other" category.

Limitations

Hysterectomy rates are based on the total female population aged 35 or older. It was not possible to exclude those who had already had the procedure. Including these women in the calculations probably had the greatest effect on rates in provinces where rates had been relatively high in the past.²² Had the figures been adjusted to account for women who were no longer eligible, hysterectomy rates would be higher than those presented here.

The figures refer only to women who were residents of the province where their hysterectomy was performed. Not all provincial databases contain information about residents who go out of province for hospital services. Consequently, the extent of out-of-province hospitalizations for hysterectomy cannot be assessed.

During each hospital stay, a patient may receive more than one diagnosis or undergo more than one surgical procedure. This analysis pertains to hysterectomies listed as the primary or secondary admission diagnosis. Because a hysterectomy is a major procedure, it is unlikely that using the first or second procedures would miss many such operations.

Hospital records are based on fiscal years, but the population estimates used to calculate rates refer to a specific point in the calendar year. Since the size of the population changes very little in a single year, any effect should be minimal and should not affect the validity of the results.

The Hospital Morbidity File for 1981/82 represents 95% of operating hospitals, which accounted for more than 99% of approved beds in Canada that year.²³ By the mid-1990s, the response rate to the Annual Survey of Health Care Facilities Hospitals was somewhat lower: over 80% of operating hospitals, which covered 90% of hospital beds.²⁴

This analysis does not pertain to the entire Canadian population: hospital data for the northern territories were not available for the entire time series. However, the number of hysterectomies performed in the North is small and would not be expected to substantially affect the results.

with hysterectomies, an estimated 90% of which are elective.⁸ Unlike many other surgical procedures, hysterectomies are performed for a wide range of indications. Malignant and pre-malignant conditions account for only a small proportion of hysterectomies. Most often, they are done to relieve symptoms caused by benign conditions: fibroids, dysfunctional uterine bleeding, endometriosis, chronic pain, and genital prolapse.^{7,8,12,25-29}

The appropriate indications for hysterectomy remain controversial, even among health care professionals.^{8,29} Moreover, there is real difficulty in diagnosing some of the conditions for which hysterectomy is commonly performed.⁶ Concern that some hysterectomies may be unnecessary has long been expressed, not only by patients and policymakers, but also by physicians.²⁷

This article analyzes national and provincial trends in hysterectomy among women aged 35 or older during the 16-year period from 1981/82 to 1996/97, based on data from Statistics Canada and the Canadian Institute for Health Information (see *Methods*). This is a descriptive analysis of hysterectomy statistics. It is not meant to suggest which hysterectomy rate, length of stay, or surgical technique is appropriate.

Common procedure

Hysterectomy is one of the most common surgical procedures performed on women in their middle years and beyond (see *Hysterectomy procedures*). But while hysterectomy carries a low risk of mortality,^{30,31} it is major surgery that can require weeks, and possibly months, for recovery.^{10,27,28}

According to the 1998/99 National Population Health Survey, over one-fifth of women aged 35 or older—an estimated 22% or 1.8 million—have had a hysterectomy. The percentage rose from 7% for 35- to 44-year-olds to 37% at ages 65 to 74, and 30% at age 75 or older.

In 1996/97, abdominal hysterectomies ranked first among surgeries undergone by women aged 35 or older, and vaginal hysterectomies, fourth. Overall, hysterectomies accounted for about 8% of operations performed on women in that age range that year.

Hysterectomy procedures

A hysterectomy may entail removal of the uterus and cervix (total) or removal of the uterus only (subtotal). Hysterectomy can be performed via the abdomen or vagina. The approach depends on the surgeon, the indication for surgery, the nature of the disease, and patient characteristics. Options include: vaginal hysterectomy, laparoscopically assisted vaginal hysterectomy, and abdominal hysterectomy (subtotal, total or radical). Postoperative rates of morbidity and complications are lower with the vaginal approach.

The abdominal approach may be indicated when exploratory surgery is necessary (for example, if cancer is present or suspected). Abdominal surgery may also be preferred when the uterus is enlarged and would be difficult to remove vaginally (as is often the case with fibroids); when the uterus has limited mobility because of adhesions from previous surgery; or when ovaries are to be removed.³

Declining rates

In 1996/97, hysterectomies were performed on 48,572 women aged 35 or older. Since 1981/82, the annual total has remained relatively stable, never falling below 46,600 or exceeding 51,600 (Appendix Table A). At the same time, the number of women in this age range rose steadily, so the rate fell from 937 to 628 hysterectomies per 100,000 women aged 35 or older. This decline would be less pronounced if the rate was based on the number of women actually “at risk,” that is, those who still had an intact uterus.²²

In each province, too, stability in the annual number of hysterectomies and the increasing adult female population meant that rates dropped (Chart 1). The steepest decline was in Québec, which had the highest rate in 1981/82. As well, Québec was the only province where fewer hysterectomies were performed in 1996/97 than in 1981/82. Rates also fell sharply in British Columbia, Alberta, Ontario and Nova Scotia. By contrast, Saskatchewan’s rate fell only slightly.

The age-adjusted hysterectomy rate in 1996/97 ranged from a low of 579 surgeries per 100,000

Hysterectomy guidelines

In April 1996, the Gynaecology Committee of the Society of Obstetricians and Gynaecologists of Canada published *Clinical Practice Guidelines for Hysterectomy*.³² Hysterectomy may be considered for: benign disease, conditions that may progress to cancer, cancer, acute conditions, and a variety of other less common indications.

- The **benign disease** category encompasses fibroids, endometriosis, adnexal mass, prolapse, dysfunctional uterine bleeding, and chronic pelvic pain.

There are few indications for hysterectomy in a patient with *fibroids* but no symptoms. Hysterectomy is indicated when fibroids are growing rapidly, or after menopause when they may raise concerns about cancer. Fertility may be preserved with a myomectomy (surgical removal of fibroids). There is, however, a 15% recurrence rate, and 10% of women who undergo a myomectomy will require a hysterectomy within 10 years. Hysteroscopy is another alternative, but it carries a 10% to 20% risk of requiring further intervention.

Endometriosis is a chronic condition in which endometrium-like tissue grows outside the endometrial cavity. Drug treatment is often associated with metabolic and symptomatic side effects and has limited success in controlling symptoms due to adhesive disease or damaged pelvic organs. Conservative surgery may be undertaken, although it has limited long-term effect and entails a cumulative recurrence rate of 13% at three years and 40% at five years. Nonetheless, the decision to proceed with a hysterectomy is a major one that should be guided by the presence of severe symptoms, the failure of other treatments, and the desire for pregnancy.

The *Guidelines* recommend consideration of a hysterectomy for a *benign adnexal mass* only if it is accompanied by another surgical indication.

If there are no other complaints, mild to moderate degrees of genital *prolapse* should only rarely be corrected. There are, however, no successful surgical alternatives to advanced uterine prolapse other than hysterectomy and vaginal repair.

Dysfunctional uterine bleeding is essentially a diagnosis of exclusion. That is, the uterus is anatomically normal, and no neoplasms, injuries or other pathologic conditions account for the bleeding. The *Guidelines* suggest that medications be considered before surgical treatment. Depending on the severity of the condition, the age of the patient, her cultural beliefs and desire for fertility, a hysterectomy can be considered.

A relatively small proportion of hysterectomies are performed because of *chronic pelvic pain*. The underlying cause of the pain should be carefully investigated before considering a hysterectomy.

There is a case for hysterectomy if a disease is present and the patient has completed her family.

- **Conditions that might progress to cancer** include endometrial hyperplasia, cervical squamous intraepithelial neoplasia, and adenocarcinoma in situ.

Endometrial hyperplasia is usually diagnosed because the patient complains of abnormal uterine bleeding. Most patients without malignant cells (atypia) can be treated with drugs, but if hyperplasia persists, they may be treated by hysterectomy. Those with atypia may be treated with drugs or a hysterectomy; however, about a quarter of cases treated with drugs progress to cancer in an average of four years.

Cervical squamous intraepithelial neoplasia is an indication for hysterectomy only if other gynaecologic conditions that justify the operation are also present.

For *adenocarcinoma in situ*, the *Guidelines* recommend a cylindrical-shaped cone biopsy. If the margins of the biopsy are clear, women who wish to remain fertile need not have a hysterectomy.

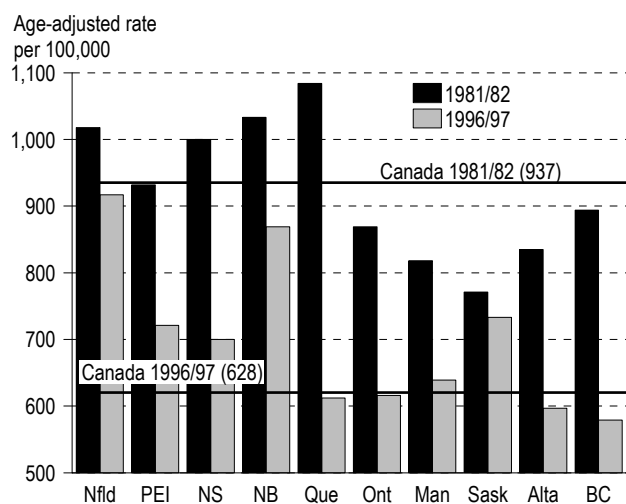
- Various forms of **cancer** are treated with hysterectomy, notably *endometrial cancer* and *uterine sarcomas*. *Cervical cancer* can be treated by either surgery or radiotherapy, as the cure rates are similar. The treatment of *ovarian cancer* may include a hysterectomy, although no data indicate that this would alter the generally poor prognosis. The reason for hysterectomy in such cases is to ensure that the uterus is not concealing disease. Hysterectomy is indicated for *fallopian tube cancer* to ensure that all of the fallopian tube has been removed and to ensure accurate follow-up.

- Several **acute conditions** may result in hysterectomy. Emergency peri-partum hysterectomy may be performed in the case of a life-threatening *hemorrhage*, although conservative measures to control obstetric hemorrhage are the mainstay of therapy.

Historically, all *tubo-ovarian abscesses* were treated by a hysterectomy, but with the development of broad-spectrum antibiotics, there are now three main indications for surgical intervention: intra-abdominal rupture of tubo-ovarian abscess, suspicion of other surgical emergencies such as appendicitis, and failure to respond to antibiotics within 48 to 72 hours. The surgical management of an unruptured abscess is less established, although a hysterectomy may be indicated.

- A number of **other indications** may prompt a hysterectomy. For instance, in consultation with an oncologist, patients with a *family history* of various forms of cancer of the reproductive system may opt for the procedure.

Chart 1
Age-adjusted hysterectomy rates, women aged 35 or older, Canada and provinces, 1981/82 and 1996/97



Data sources: Statistics Canada, Hospital Morbidity File, 1981/82; Canadian Institute for Health Information, 1996/97

Note: Refers to CCP 80.2 to 80.7. Adjusted to age distribution of women aged 35 or older in 1996.

women aged 35 or older in British Columbia to a high of 917 in Newfoundland.

Indications

The degree of consensus on whether a hysterectomy should be performed depends on the condition for which it is being considered.^{17,33} Some gynaecological disorders, which in earlier years might have meant a hysterectomy, are hormonally responsive and can be treated with drugs, or with less radical surgery.^{1-5,8} There is general agreement on the need for hysterectomy to treat uterine cancer, but not for cervical cancer. For fibroids, the decision depends on their size, rate of growth, and the patient's symptoms. And for advanced uterine prolapse, there are no successful surgical alternatives to hysterectomy. Endometriosis has a wide variety of symptoms, which makes diagnosis difficult, and treatment options are numerous. For menstrual hemorrhage, the only objective measure of severity is whether it causes anemia.

Over the 1981/82 to 1996/97 period, rising proportions of hysterectomies were performed for clear-cut indications, and declining shares for more discretionary indications. In every province (except Prince Edward Island in 1981/82), fibroids was the

leading reason in both 1981/82 and 1996/97, although the percentage was larger in 1996/97 (Table 1). At the same time, the percentage of hysterectomies performed for "other" reasons declined in each province.

In 1996/97, the proportion of hysterectomies attributable to fibroids varied from 29% in New Brunswick to 41% in Québec. Menstrual hemorrhage and pain was the main indication for 13% of hysterectomies in British Columbia, but accounted for 31% in New Brunswick. The percentage attributable to cancer ranged from 6% in Prince Edward Island and New Brunswick to 13% in Manitoba.

The publication of guidelines by the Society of Obstetricians and Gynaecologists of Canada³² in 1996 may go some way toward resolving the lack of consensus that tends to surround the indications for hysterectomy, and thereby reduce geographic differences (see *Hysterectomy guidelines*). Some researchers, however, have questioned the value of such statements.³⁴ The decline in Québec's rates occurred in the "absence of any explicit recommendations from medical bodies."³⁵ On the other hand, in the 1970s in Saskatchewan, concern about rising hysterectomy rates resulted in the formation of a committee that set up criteria for the procedure.³⁶ From 1970 to 1974, the number of hysterectomies in that province fell by almost a third. Yet, as this analysis illustrates, from the early 1980s to the mid-1990s, Saskatchewan had the least change in hysterectomy rates.

More vaginal procedures

One of the major decisions made about a hysterectomy is whether it will be abdominal or vaginal. The selection of the surgical approach is important because vaginal hysterectomies tend to be associated with less discomfort and risk of infection, a lower complication rate, a shorter hospital stay, an earlier resumption of normal activities, and lower costs.^{28,37-39} Throughout the 1981/82 to 1996/97 period, the majority of hysterectomies were abdominal, although the number and percentage performed vaginally rose (Chart 2, Appendix Table B).

Table 1
 Percentage distribution, main indications for hysterectomy, Canada and provinces, 1981/82 and 1996/97

	Number of hysterectomies	Total	Percentage distribution					
			Fibroids	Menstrual hemorrhage and pain	Uterine prolapse	Endometriosis	Cancer	Other†
Canada								
1981/82	46,614	100.0	33.6	16.8	13.6	13.2	9.6	13.3
1996/97	48,572	100.0	39.4‡	16.1‡	13.7	11.7‡	10.2‡	8.8‡
Newfoundland								
1981/82	974	100.0	24.3§	15.3	17.9§	17.3§	7.5§	17.8§
1996/97	1,310	100.0	33.6‡§	16.1	17.3§	13.1‡	7.9§	12.1‡§
Prince Edward Island								
1981/82	208	100.0	22.1§	32.2§	9.6§	11.1	8.2	16.8
1996/97	246	100.0	30.1§	22.8‡§	13.0	17.9‡§	5.7§	10.6
Nova Scotia								
1981/82	1,638	100.0	32.5	23.7§	11.7§	11.0§	8.3	12.8
1996/97	1,720	100.0	35.2§	21.9§	10.6§	13.8‡§	9.9	8.6‡
New Brunswick								
1981/82	1,337	100.0	23.6§	23.4§	14.0	14.8	7.3§	17.0§
1996/97	1,704	100.0	29.3‡§	30.7‡§	12.6	13.3	6.3§	7.9‡
Québec								
1981/82	14,819	100.0	36.7§	14.9§	12.4§	14.7§	6.6§	14.6§
1996/97	12,147	100.0	40.9‡§	16.2‡	14.2‡	11.3‡	9.4‡§	8.1‡§
Ontario								
1981/82	16,060	100.0	32.2§	18.7§	14.6§	11.7§	10.8§	12.0§
1996/97	17,849	100.0	39.9‡	14.9‡§	14.4§	10.8‡§	11.0§	9.0‡
Manitoba								
1981/82	1,713	100.0	35.7	13.5§	15.1	9.7§	15.5§	10.6§
1996/97	1,809	100.0	38.5	13.9§	15.7§	10.2§	12.5‡§	9.2
Saskatchewan								
1981/82	1,414	100.0	31.5	13.8§	18.5§	10.1§	11.5§	14.5
1996/97	1,791	100.0	39.7‡	13.9§	13.9‡	12.6‡	10.6	9.5‡
Alberta								
1981/82	3,332	100.0	33.0	23.2§	11.0§	11.7§	9.4	11.7§
1996/97	4,071	100.0	39.6‡	18.7‡§	9.8§	13.0§	9.5	9.4‡
British Columbia								
1981/82	5,119	100.0	34.2	9.4§	13.8	15.4§	13.4§	13.7
1996/97	5,925	100.0	40.7‡§	12.8‡§	13.6	13.2‡§	11.2‡§	8.5‡

Data sources: Statistics Canada, Hospital Morbidity File, 1981/82; Canadian Institute for Health Information, 1996/97

Notes: Because of rounding, percentages may not add to 100%. Refers to CCP 80.2 to 80.7.

† For example, menopausal disorders, ovarian diseases, contraceptive management

‡ Significantly different from figure for 1981/82 ($p \leq 0.05$)

§ Significantly different from national figure for respective year ($p \leq 0.05$)

Except in Nova Scotia, the percentage of vaginal hysterectomies increased in each province. By 1996/97, vaginal hysterectomies accounted for almost half the total in Prince Edward Island and 4 out of 10 in New Brunswick. The greatest increases, however, were in Québec and Alberta (Chart 3). In 1981/82, just 16% and 18%, respectively, of hysterectomies in those provinces had been vaginal, but by 1996/97, the figure had risen to 33%. The provinces with the lowest percentages of vaginal hysterectomies (29% or 30%) in 1996/97 were

Ontario, Manitoba and Saskatchewan. Even so, for Ontario and Manitoba, this marked an upturn from about 20% at the beginning of the period. By contrast, the change in Saskatchewan was relatively small: from 26% to 29%. And in Nova Scotia, the figure actually declined from 40% to 34%.

Shorter stays

Over the last two decades, average stays for all types of hospitalization have decreased.⁴⁰ For hysterectomies, average hospital time was halved

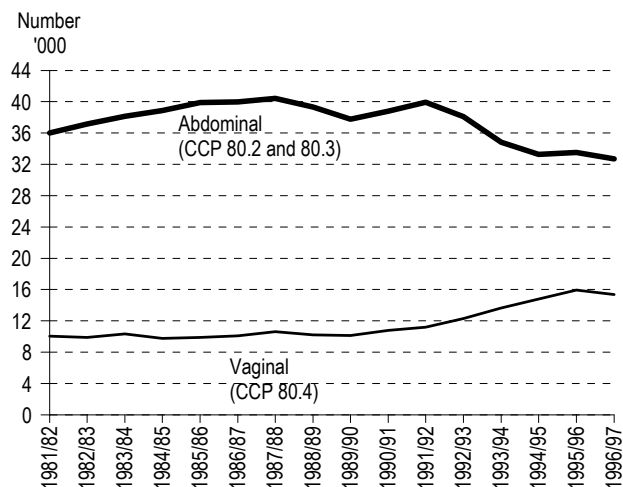
from 9.7 days in 1981/82 to 4.8 days in 1996/97, a trend that has been noted in other countries^{41,42} (Table 2, Appendix Table C). The average also dropped in each province. By 1996/97, Alberta had the shortest average length of stay (3.8 days), and

Québec and Prince Edward Island, the longest (5.8 and 5.7 days, respectively).

Some of the decline in average stays reflects the rising proportion of vaginal hysterectomies. Until the early 1990s, vaginal hysterectomies involved more hospital time than did abdominal procedures (Chart 4). However, by 1996/97, the averages were 4.1 days for a vaginal hysterectomy and 5.1 days for an abdominal hysterectomy (Appendix Table D).

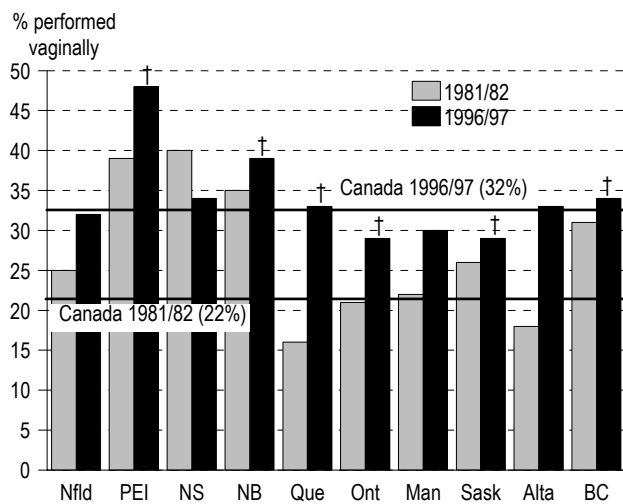
Average stays for both abdominal and vaginal hysterectomies fell in every province. Nonetheless, provincial differences persisted. In 1996/97, for an abdominal hysterectomy, Alberta women averaged 4.1 hospital days, compared with at least 6 days for their Québec and Prince Edward Island counterparts. Similarly, a vaginal hysterectomy entailed an average of 3.0 days in Alberta, but 5.2 days in Québec.

Chart 2
Hospital separations, by type of hysterectomy, women aged 35 or older, Canada excluding territories, 1981/82 to 1996/97



Data sources: Statistics Canada, Hospital Morbidity File, 1981/82 to 1994/95; Canadian Institute for Health Information, 1995/96 and 1996/97

Chart 3
Percentage of all hysterectomies performed vaginally, women aged 35 or older, Canada and provinces, 1981/82 and 1996/97

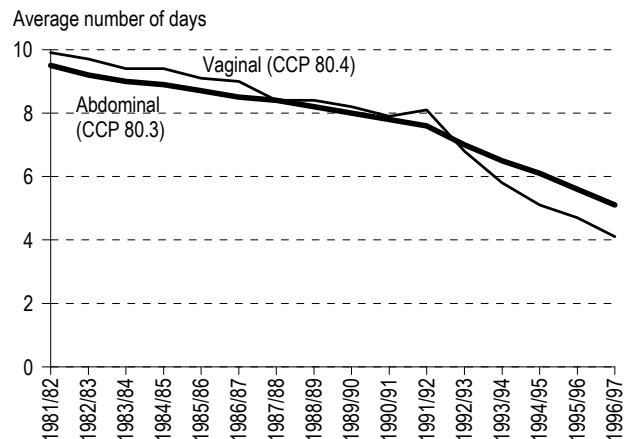


Data sources: Statistics Canada, Hospital Morbidity File, 1981/82; Canadian Institute for Health Information, 1996/97
Note: Refers to CCP 80.4. Percentage performed vaginally significantly different in 1996/97 than in 1981/82 in all provinces except Prince Edward Island and Saskatchewan.
 † Significantly different than national figure for 1996/97 ($p \leq 0.05$)

Fewer hospital days

Lower rates and shorter stays combined to drastically reduce the number of hospital days attributable to hysterectomies. In 1981/82, hysterectomies accounted for 450,500 days; by 1996/97, the total was down to 234,100. This trend characterized every province, although the extent of the downturn varied (Appendix Table C). Declines of around 50% occurred in Nova Scotia, Québec, Ontario, Manitoba and Alberta. By contrast, Prince Edward Island's

Chart 4
Average length of hospital stay, by type of hysterectomy, women aged 35 or older, Canada excluding territories, 1981/82 to 1996/97



Data sources: Statistics Canada, Hospital Morbidity File, 1981/82 to 1994/95; Canadian Institute for Health Information, 1995/96 and 1996/97

Table 2
Average length of hospital stay, by type of hysterectomy, Canada and provinces, 1981/82 and 1996/97

	Total (CCP 80.2 to 80.7)			Abdominal (CCP 80.2 and 80.3)			Vaginal (CCP 80.4)		
	1981/82	1996/97	Decline	1981/82	1996/97	Decline	1981/82	1996/97	Decline
	Average number of days			Average number of days			Average number of days		
Canada	9.7	4.8	4.9	9.5	5.1	4.4	9.9	4.1	5.8
Newfoundland	9.7	5.1 [†]	4.6	9.3	5.3	4.0	10.3	4.4 [†]	5.9
Prince Edward Island	8.8 [†]	5.7 [†]	3.1	8.6 [†]	6.5 [†]	2.1	8.3 [†]	4.8 [†]	3.5
Nova Scotia	9.9	4.6 [†]	5.3	10.5 [†]	5.0	5.5	8.7 [†]	3.6 [†]	5.1
New Brunswick	9.7	4.7	5.0	9.6	5.2	4.4	9.8	4.0	5.8
Québec	9.8	5.8 [†]	4.0	9.6	6.0 [†]	3.6	10.7 [†]	5.2 [†]	5.5
Ontario	9.9 [†]	4.5 [†]	5.4	9.7	4.7 [†]	5.0	10.1	3.8 [†]	6.3
Manitoba	10.1 [†]	4.9	5.2	10.0 [†]	5.1	4.9	10.3	4.3	6.0
Saskatchewan	10.3 [†]	5.1	5.2	10.1 [†]	5.2 [†]	4.9	10.9 [†]	4.3	6.6
Alberta	9.3 [†]	3.8 [†]	5.5	9.0 [†]	4.1 [†]	4.9	10.2	3.0 [†]	7.2
British Columbia	8.3 [†]	4.4 [†]	3.9	8.3 [†]	4.7	3.6	8.4 [†]	3.7 [†]	4.7

Data sources: Statistics Canada, Hospital Morbidity File, 1981/82; Canadian Institute for Health Information, 1996/97
[†] Significantly different from national figure for respective year ($p \leq 0.05$)

reduction in hospital days due to hysterectomy amounted to only 23%, and Newfoundland's, 29%.

Notable differences

Contrasts in provincial hysterectomy trends and patterns are striking. For instance, Alberta had a steep drop in rates, a sharp upturn in the percentage performed vaginally, and in 1996/97, the shortest average length of stay. Québec also experienced a sharp decline in rates and a notable increase in the proportion performed vaginally. Yet women who had hysterectomies in Québec averaged the longest time in hospital.

The decline in Québec's hysterectomy rate (and indeed, in the number of hysterectomies) may be a long-term effect of the high rate in the past, which rendered large numbers of women ineligible for the procedure in more recent years. Had it been possible to exclude these women from the calculations, Québec's 1996/97 rate might be much higher.²²

In Nova Scotia, contrary to the trend elsewhere, the proportion of hysterectomies performed vaginally declined. In fact, Nova Scotia was the only

province that recorded fewer vaginal hysterectomies in 1996/97 than in 1981/82.

Saskatchewan's hysterectomy rate was relatively stable, with only a small increase in the proportion performed vaginally.

Concluding remarks

The substantial provincial variations in hysterectomy rates, the proportion performed vaginally, and average length of stay may result from a combination of several factors. The literature attributes such differences to three main groups of causes: physician factors, the nature of the health care system, and patient characteristics.

Differences in hysterectomy rates and surgical approaches may reflect physicians' uncertainty about appropriate indications.^{27,29} Thus, the degree of variation in any surgical procedure may be a measure of the relative importance of professional discretion in the decision to use it. A 1994 study noted large interregional differences in hysterectomy rates in Ontario for indications that are more discretionary, and less variation in rates when the diagnosis and

treatment options are clearer (notably, cancer and fibroids).¹⁷ The decision to resort to hysterectomy may reflect physicians' diagnostic and practice styles, experience, and beliefs in the efficacy of the operation.¹⁰ These, in turn, may be affected by the recency of physicians' training, as lower hysterectomy rates have been noted among recent medical school graduates,⁸ who may be more aware of newer alternatives.

The same Ontario study found that regions with teaching hospitals tended to have lower hysterectomy rates, particularly for discretionary indications, but higher rates for definitive indications. Teaching hospitals are likely to be on the forefront of medical knowledge and to have access to surgical options, technologies, and alternatives not yet widely available.¹⁷ As these alternatives become more common, their use tends to spread beyond the confines of a particular institution. Thus, the presence of a teaching hospital in a region may affect the attitudes not only of physicians affiliated with that hospital, but also those of physicians throughout the region.

Higher hysterectomy rates have been observed in less urbanized areas of the United States,^{8,10,12,29,43} Great Britain^{6,12} and Australia.¹⁵ It might be that some geographic variations in hysterectomy rates in Canada also have to do with whether patients are city-dwellers. Because of the distances involved, it may be more difficult to offer rural women alternative treatment as outpatients.^{15,16} In borderline cases, medical staff and the women themselves (wishing to avoid the inconvenience of travelling to specialists for regular monitoring) may opt for a hysterectomy. To some extent, this could account for the relatively high rates in the Atlantic provinces and Saskatchewan, which have substantial numbers of people living far from urban centres.

Patient characteristics, too, may be related to whether a hysterectomy is performed. Repeatedly, educational attainment has been shown to be negatively associated with having the procedure.^{12,15,16,44,45} It has been speculated that medical or less radical surgical alternatives may more frequently be offered to or chosen by women with higher education.⁴⁴ And possibly because they are

better able to communicate with doctors,⁴⁶ such women may get more discussion and reassurance about their symptoms and so be less inclined to choose surgery.⁴⁴ Therefore, the rising educational attainment of middle-aged women over the past 20 years⁴⁷ may have contributed to the decline in the hysterectomy rate.

Quality of life considerations, however, are often paramount in a patient's decision.^{10,21} For some women, a hysterectomy is the preferred solution.⁵ And for a wide range of conditions, women who have had a hysterectomy report a marked improvement in quality of life and high levels of satisfaction.²⁹

The route to hysterectomy is complex. It may involve the use of a number of alternatives before the decision to proceed with surgery is made. Moreover, low hysterectomy rates do not inevitably mean superior standards of practice.^{6,11} Despite the trend to non-hysterectomy management of gynaecological problems, it is not possible to conclude that high rates reflect unnecessary hysterectomies. ●

References

- 1 Bernhard LA. Laser endometrial ablation: An alternative to hysterectomy. *Health Care for Women International* 1994; 15(2): 123-33.
- 2 Thomas EJ. Combining medical and surgical treatment for endometriosis: the best of both worlds? *British Journal of Obstetrics and Gynaecology* 1992; 99(Suppl 7): 5-8.
- 3 Weber AM, Munro MG. Endometrial ablation versus hysterectomy: Stop-DUB. *Medscape Women's Health* 1998; 3(3).
- 4 Yusuf F, Siedlecky S. Hysterectomy and endometrial ablation in New South Wales, 1981 to 1994-1995. *Australian and New Zealand Journal of Obstetrics and Gynaecology* 1997; 37(2): 210-6.
- 5 Scialli AR. Alternatives to hysterectomy for benign conditions. *International Journal of Fertility* 1998; 3(3): 186-91.
- 6 Coulter A, McPherson K, Vessey M. Do British women undergo too many or too few hysterectomies? *Social Science and Medicine* 1988; 27(9): 987-94.
- 7 LaGuardia KD. Hospitalization for abnormal uterine bleeding: What does this tell us about changing practices? *Journal of Women's Health* 1997; 6(1): 7-9.

- 8 Kramer MG, Reiter RC. Hysterectomy: Indications, alternatives and predictors. *American Family Physician* 1997; 5(3): 827-34.
- 9 Lepine LA, Hillis SD, Marchbanks PA, et al. Hysterectomy surveillance—United States, 1980-1993. *Morbidity and Mortality Weekly Report* 1997; 46(SS-4): 1-15.
- 10 Geller SE, Burns LR, Brailer DJ. The impact of nonclinical factors on practice variations: The case of hysterectomies. *Health Services Research* 1996; 30(6): 729-50.
- 11 Dicker RC, Scally MJ, Greenspan JR, et al. Hysterectomy among women of reproductive age: Trends in the United States, 1970-1978. *Journal of the American Medical Association* 1982; 248(3): 323-7.
- 12 Koepsell TD, Weiss NS, Thompson DJ, et al. Prevalence of prior hysterectomy in the Seattle-Tacoma area. *American Journal of Public Health* 1980; 70(1): 40-7.
- 13 McPherson K, Strong PM, Epstein A, et al. Regional variations in the use of common surgical procedures: Within and between England and Wales, Canada and the United States of America. *Social Science and Medicine* 1981; 15A: 273-88.
- 14 Vessey MP, Villard-Mackintosh L, McPherson K, et al. The epidemiology of hysterectomy: findings in a large cohort study. *British Journal of Obstetrics and Gynecology* 1992; 99: 402-7.
- 15 Santow G, Bracher M. Correlates of hysterectomy in Australia. *Social Science and Medicine* 1992; 34(8): 929-42.
- 16 Schofield MJ, Hennrikus DJ, Redman S, et al. Prevalence and characteristics of women who have had a hysterectomy in a community survey. *Australian and New Zealand Journal of Obstetrics and Gynaecology* 1991; 31(2): 153-8.
- 17 Hall RE, Cohen MM. Variations in hysterectomy rates in Ontario: Does the indication matter? *Canadian Medical Association Journal* 1994; 151(12): 1713-9.
- 18 Statistics Canada. *Canadian Classification of Diagnostic, Therapeutic and Surgical Procedures* (Catalogue 82-562E) Ottawa: Minister of Industry, Science and Technology, 1993.
- 19 US National Center for Health Statistics. *The International Classification of Diseases. 9th Revision. Clinical Modification. Volume 3. Procedures*. Ann Arbor, Michigan: Commission on Professional and Hospital Activities, 1978.
- 20 Statistics Canada, Health Statistics Division. Annex - National Population Health Survey (NPHS). *Health Reports* (Statistics Canada, Catalogue 82-003) 1999; 11(3): 111-2.
- 21 Armitage P, Berry G. *Statistical Methods in Medical Research. Second Edition*. Oxford: Blackwell Scientific Publications 1987.
- 22 Snider JA, Beauvais J. Pap smear utilization in Canada: Estimates after adjusting the eligible population for hysterectomy status. *Chronic Diseases in Canada* 1998; 19(1): 19-24.
- 23 Statistics Canada. *Hospital Annual Statistics, 1981/82* (Catalogue 83-232) Ottawa: Minister of Supply and Services, 1984.
- 24 Statistics Canada. *Hospital Statistics: Preliminary Annual Report, 1994/95* (Catalogue 83-241-XPB) Ottawa: Minister of Industry, 1996.
- 25 Meilahn EN, Matthews KA, Egeland G, et al. Characteristics of women with hysterectomy. *Maturitas* 1989; 11: 319-29.
- 26 Kjerulff KH, Erickson BA, Langenberg PW. Chronic gynecological conditions reported by US women: Findings from the National Health Interview Survey, 1984 to 1992. *American Journal of Public Health* 1996; 86(2): 195-9.
- 27 Carlson KJ, Miller BA, Fowler FJ. The Maine Women's Health Study: I. Outcomes of hysterectomy. *Obstetrics and Gynecology* 1994; 83(4): 556-65.
- 28 Kjerulff KH, Guzinski GM, Langenberg PW, et al. Hysterectomy: An examination of a common surgical procedure. *Journal of Women's Health* 1992; 1(2): 141-7.
- 29 Carlson KJ, Nichols DH, Schiff I. Indications for hysterectomy. *The New England Journal of Medicine* 1993; 328(12): 856-60.
- 30 Schofield MJ, Bennett A, Redman S, et al. Self-reported long-term outcomes of hysterectomy. *British Journal of Obstetrics and Gynecology* 1991; 98: 1129-36.
- 31 Ryan MM. Hysterectomy: social and psychosexual aspects. *Baillière's Clinical Obstetrics and Gynaecology* 1997; 11(1): 23-36.
- 32 Gynaecology Committee of the Society of Obstetricians and Gynaecologists of Canada. *Clinical Practice Guidelines for Hysterectomy*. Ottawa: Society of Obstetricians and Gynaecologists of Canada, 1996.
- 33 Vayda E, Gentlemen JF, Walsh MN, et al. Hysterectomy rates by diagnosis: Variation among Canadian Census Divisions. *Journal of the Society of Obstetricians and Gynaecologists of Canada* 1996; 18(4): 12-8.
- 34 Lomas J, Anderson G, Domnick-Pierre K, et al. Do practice guidelines guide practice? *The New England Journal of Medicine* 1989; 321(19): 1306-11.
- 35 Allard P, Rochette L. The descriptive epidemiology of hysterectomy, province of Québec, 1981-1988. *Annals of Epidemiology* 1991; 1(6): 541-9.
- 36 Dyck FJ, Murphy FA, Murphy JK, et al. Effect of surveillance on the number of hysterectomies in the province of Saskatchewan. *The New England Journal of Medicine* 1977; 296(21): 1326-8.
- 37 Summit RL(Jr), Stovall TG, Steege JF, et al. A multicenter randomized comparison of laparoscopically assisted vaginal hysterectomy and abdominal hysterectomy in abdominal hysterectomy candidates. *Obstetrics and Gynecology* 1998; 92(3): 321-6.
- 38 Ransom SB, McNeeley SG, White C, et al. A cost analysis of endometrial ablation, abdominal hysterectomy, vaginal hysterectomy, and laparoscopic-assisted vaginal hysterectomy in the treatment of primary menorrhagia. *The Journal of the American Association of Gynecologic Laparoscopists* 1996; 4(1): 29-32.
- 39 Cohen MM, Young W. Costs of hysterectomy: Does surgical approach make a difference? *Journal of Women's Health* 1998; 7(7): 885-92.
- 40 Tully P, Saint-Pierre E. Downsizing Canada's hospitals, 1986/87 to 1994/95. *Health Reports* (Statistics Canada, Catalogue 82-003) 1997; 8(4): 33-9.
- 41 van Keep PA, Wildemeersch D, Leher P. Hysterectomy in six European countries. *Maturitas* 1983; 5: 69-75.

- 42 Sills ES, Saini J, Steiner CA, et al. Abdominal hysterectomy practice patterns in the United States. *International Journal of Gynecology and Obstetrics* 1998; 63: 277-83.
- 43 Kritz-Silverstein D, Wingard DL, Barrett-Connor E, et al. Hysterectomy, oophorectomy and depression in older women. *Journal of Women's Health* 1994; 3(4): 255-63.
- 44 Kuh D, Stirling S. Socioeconomic variation in admission for diseases of female genital system and breast in a national cohort aged 15-43. *British Medical Journal* 1995; 311: 840-3.
- 45 Dharmalingam D, Pool I, Dickson J. Biosocial determinants of hysterectomy in New Zealand. *American Journal of Public Health* 2000; 90(9): 1455-8.
- 46 Wilcox S, Koonin LM, Pokras R, et al. Hysterectomy in the United States, 1988-1990. *Obstetrics and Gynecology* 1994; 83(4): 549-55.
- 47 Chen J, Millar WJ. Are recent cohorts healthier than their predecessors? *Health Reports* (Statistics Canada, Catalogue 82-003) 2000; 11(4): 9-23.

Appendix

Table A

Hospital separations for hysterectomy and age-adjusted rates, women aged 35 or older, Canada and provinces, 1981/82 to 1996/97

	Canada	New-found-land	Prince Edward Island	Nova Scotia	New Brunsw-ick	Québec	Ontario	Manitoba	Sas-katch-ewan	Alberta	British Columbia
Number of separations											
1981/82	46,614	974	208	1,638	1,337	14,819	16,060	1,713	1,414	3,332	5,119
1982/83	47,631	1,099	247	1,729	1,329	14,750	16,333	1,647	1,526	3,935	5,036
1983/84	49,089	1,198	291	1,729	1,405	15,206	16,546	1,745	1,512	4,015	5,442
1984/85	49,083	1,150	221	1,780	1,474	14,654	16,705	1,947	1,574	4,195	5,383
1985/86	50,205	1,180	232	1,823	1,463	14,631	17,270	1,896	1,576	4,364	5,770
1986/87	50,557	1,342	254	1,866	1,554	14,031	17,557	1,919	1,685	4,613	5,736
1987/88	51,553	1,466	247	1,911	1,617	13,748	18,551	1,957	1,723	4,256	6,077
1988/89	50,082	1,311	219	1,952	1,627	13,019	18,253	1,817	1,788	4,414	5,682
1989/90	48,352	1,212	217	1,965	1,600	12,461	17,717	1,898	1,765	4,164	5,353
1990/91	50,067	1,183	208	1,873	1,592	12,946	18,793	1,701	1,459	4,235	6,077
1991/92	51,600	1,262	188	2,015	1,633	13,066	19,137	1,990	1,750	4,461	6,098
1992/93	50,921	1,225	203	1,977	1,660	12,992	18,806	1,854	1,808	4,564	5,832
1993/94	48,999	1,208	273	1,939	1,654	12,788	17,646	1,788	1,610	4,372	5,721
1994/95	48,560	1,097	273	1,890	1,688	13,024	17,545	1,696	1,574	4,181	5,592
1995/96	49,939	1,107	249	1,862	1,672	13,186	18,064	1,829	1,690	4,234	6,046
1996/97	48,572	1,310	246	1,720	1,704	12,147	17,849	1,809	1,791	4,071	5,925
Age-adjusted rate per 100,000											
1981/82	937	1,018	932	1,000	1,033	1,084 [†]	869 [†]	818	771 [†]	835 [†]	894
1982/83	927	1,115	1,042	1,017	987	1,050	857	775	820	933	848
1983/84	927	1,168	1,208	981	1,009	1,057	842	801	795	918	884
1984/85	903	1,087	867	982	1,025	995	827	883	820	934	842
1985/86	900	1,078	901	985	992	970	834	845	800	945	879
1986/87	883	1,193	958	986	1,028	908	827	836	851	967	848
1987/88	873	1,265	912	981	1,034	866	844	827	849	870	867
1988/89	824	1,107	793	978	1,012	800	803	758	870	875	780
1989/90	767	993	751	955	966	742	751	774	840	793	702
1990/91	769	944	700	885	928	748	771	680	665	775	762
1991/92	769	973	622	921	925	736	762	777	798	782	734
1992/93	737	922	654	884	921	714	728	711	813	770	674
1993/94	688	888	860	844	895	685	664	668	706	712	632
1994/95	663	796	845	805	894	682	641	622	679	656	591
1995/96	663	789	747	775	869	676	641	657	710	643	613
1996/97	628	917 [†]	721	700	869 [†]	612	616	639	733	597	579

Data sources: Statistics Canada, Hospital Morbidity File, 1981/82 to 1994/95; Canadian Institute for Health Information, 1995/96 and 1996/97

Note: Refers to CCP 80.2 to 80.7. Adjusted to age distribution of women aged 35 or older in 1996. Declines in hysterectomy rates between 1981/82 and 1996/97 were significant in all provinces.

[†] Significantly different from national figure for respective year ($p \leq 0.05$)

Table B
Hospital separations, by type of hysterectomy, women aged 35 or older, Canada and provinces, 1981/82 to 1996/97

	Canada	New-found-land	Prince Edward Island	Nova Scotia	New Brunsw- wick	Québec	Ontario	Manitoba	Sas- katch- ewan	Alberta	British Columbia
Abdominal (CCP 80.2 and 80.3)											
1981/82	36,016	717	125	978	865	12,155	12,547	1,338	1,043	2,728	3,520
1982/83	37,166	843	136	1,061	857	12,193	12,920	1,269	1,139	3,189	3,559
1983/84	38,132	903	182	1,041	931	12,433	13,098	1,388	1,151	3,213	3,792
1984/85	38,874	885	148	1,125	969	12,158	13,445	1,601	1,227	3,461	3,855
1985/86	39,875	921	141	1,158	998	12,222	14,013	1,541	1,179	3,511	4,191
1986/87	39,992	1,042	145	1,206	976	11,681	14,185	1,539	1,317	3,707	4,194
1987/88	40,426	1,163	147	1,261	1,017	11,210	14,951	1,547	1,326	3,414	4,390
1988/89	39,341	1,019	119	1,294	1,115	10,510	14,707	1,472	1,434	3,516	4,155
1989/90	37,759	908	144	1,288	1,076	10,037	14,161	1,528	1,372	3,367	3,878
1990/91	38,779	925	124	1,214	1,042	10,197	15,041	1,350	1,082	3,377	4,427
1991/92	39,917	956	124	1,326	1,124	10,263	15,278	1,533	1,380	3,509	4,424
1992/93	38,103	864	138	1,342	1,125	9,610	14,604	1,437	1,361	3,538	4,084
1993/94	34,820	872	189	1,224	1,116	9,052	12,864	1,358	1,133	3,063	3,949
1994/95	33,278	778	144	1,252	1,059	8,776	12,490	1,294	1,104	2,737	3,644
1995/96	33,535	772	125	1,196	1,063	8,795	12,393	1,321	1,183	2,794	3,893
1996/97	32,703	873	126	1,120	1,036	7,941	12,530	1,251	1,259	2,715	3,852
Vaginal (CCP 80.4)											
1981/82	10,070	247	81	649	469	2,386	3,325	369	366	594	1,584
1982/83	9,899	252	111	656	467	2,221	3,248	361	383	731	1,469
1983/84	10,341	284	109	662	471	2,461	3,250	342	354	785	1,623
1984/85	9,779	259	73	636	500	2,323	3,111	332	334	713	1,498
1985/86	9,874	247	91	635	463	2,249	3,073	341	383	834	1,558
1986/87	10,095	293	109	639	575	2,155	3,207	364	356	884	1,513
1987/88	10,620	283	100	633	596	2,309	3,446	393	377	827	1,656
1988/89	10,203	276	100	631	504	2,300	3,361	325	338	870	1,498
1989/90	10,138	287	71	654	521	2,266	3,387	346	383	774	1,449
1990/91	10,807	242	83	632	545	2,596	3,579	327	359	823	1,621
1991/92	11,182	286	64	665	503	2,657	3,663	439	361	920	1,624
1992/93	12,308	351	65	608	530	3,237	3,983	399	428	1,003	1,704
1993/94	13,670	322	82	683	532	3,577	4,587	413	463	1,284	1,727
1994/95	14,782	308	129	609	623	4,109	4,850	385	451	1,425	1,893
1995/96	15,940	318	124	640	604	4,247	5,494	487	488	1,419	2,119
1996/97	15,373	415	119	584	663	4,045	5,132	543	517	1,332	2,023

Data sources: Statistics Canada, Hospital Morbidity File, 1981/82 to 1994/95; Canadian Institute for Health Information, 1995/96 and 1996/97

Table C
Number of hospital days and average length of stay for hysterectomy, women aged 35 or older, Canada and provinces, 1981/82 to 1996/97

	Canada	New-found-land	Prince Edward Island	Nova Scotia	New Brunswick	Québec	Ontario	Manitoba	Sas-katch-ewan	Alberta	British Columbia
Number of days											
1981/82	450,533	9,422	1,822	16,159	13,035	145,268	159,193	17,284	14,615	31,014	42,721
1982/83	448,391	9,928	2,148	17,001	13,046	141,348	156,963	16,384	15,920	35,511	40,142
1983/84	451,687	11,054	2,538	16,367	13,138	142,874	155,508	16,512	15,060	35,926	42,710
1984/85	446,299	10,508	1,891	16,376	13,869	136,584	154,247	18,653	15,560	36,695	41,916
1985/86	446,580	9,875	2,146	16,266	13,165	135,899	155,211	17,624	15,312	37,297	43,785
1986/87	440,862	10,895	2,194	16,100	13,662	128,897	153,870	17,853	16,115	38,754	42,522
1987/88	436,229	11,539	2,075	15,988	14,345	124,022	157,977	16,557	15,669	33,714	44,343
1988/89	416,140	10,557	1,814	16,236	13,483	115,733	151,513	16,462	15,205	34,695	40,442
1989/90	391,140	9,966	1,981	15,774	12,653	109,072	140,965	16,488	14,625	32,162	37,454
1990/91	394,873	9,632	1,697	14,812	12,711	113,790	143,932	13,718	11,917	31,132	41,532
1991/92	399,649	9,386	1,567	15,383	12,136	123,293	136,900	16,492	13,634	30,787	40,071
1992/93	358,914	8,802	1,571	14,062	11,933	111,041	120,344	13,878	12,245	28,377	36,661
1993/94	313,331	7,555	1,824	12,900	11,227	102,930	100,079	11,179	9,727	22,013	33,897
1994/95	284,555	6,803	1,835	10,553	9,806	100,153	91,064	9,728	8,466	17,197	28,950
1995/96	268,527	6,078	1,572	9,324	9,048	92,135	86,333	10,943	8,734	16,606	27,754
1996/97	234,132	6,698	1,401	7,861	8,072	70,765	80,032	8,841	9,074	15,410	25,978
Average number of days											
1981/82	9.7	9.7	8.8	9.9	9.7	9.8	9.9	10.1	10.3	9.3	8.3
1982/83	9.4	9.0	8.7	9.8	9.8	9.6	9.6	9.9	10.4	9.0	8.0
1983/84	9.2	9.2	8.7	9.5	9.4	9.4	9.4	9.5	10.0	8.9	7.8
1984/85	9.1	9.1	8.6	9.2	9.4	9.3	9.2	9.6	9.9	8.7	7.8
1985/86	8.9	8.4	9.3	8.9	9.0	9.3	9.0	9.3	9.7	8.5	7.6
1986/87	8.7	8.1	8.6	8.6	8.8	9.2	8.8	9.3	9.6	8.4	7.4
1987/88	8.5	7.9	8.4	8.4	8.9	9.0	8.5	8.5	9.1	7.9	7.3
1988/89	8.3	8.1	8.3	8.3	8.3	8.9	8.3	9.1	8.5	7.9	7.1
1989/90	8.1	8.2	9.1	8.0	7.9	8.8	8.0	8.7	8.3	7.7	7.0
1990/91	7.9	8.1	8.2	7.9	8.0	8.8	7.7	8.1	8.2	7.4	6.8
1991/92	7.7	7.4	8.3	7.6	7.4	9.4	7.2	8.3	7.8	6.9	6.6
1992/93	7.0	7.2	7.7	7.1	7.2	8.5	6.4	7.5	6.8	6.2	6.3
1993/94	6.4	6.3	6.7	6.7	6.8	8.0	5.7	6.3	6.0	5.0	5.9
1994/95	5.9	6.2	6.7	5.6	5.8	7.7	5.2	5.7	5.4	4.1	5.2
1995/96	5.4	5.5	6.3	5.0	5.4	7.0	4.8	6.0	5.2	3.9	4.6
1996/97	4.8	5.1	5.7	4.6	4.7	5.8	4.5	4.9	5.1	3.8	4.4

Data sources: Statistics Canada, Hospital Morbidity File, 1981/82 to 1994/95; Canadian Institute for Health Information, 1995/96 and 1996/97

Note: Refers to CCP 80.2 to 80.7.

Table D
Average length of hospital stay, by type of hysterectomy, women aged 35 or older, Canada and provinces, 1981/82 to 1996/97

	Canada	New-found-land	Prince Edward Island	Nova Scotia	New Brunsw- wick	Québec	Ontario	Manitoba	Sas- katch- ewan	Alberta	British Columbia
	Average number of days										
Abdominal (CCP 80.2 and 80.3)											
1981/82	9.5	9.3	8.6	10.5	9.6	9.6	9.7	10.0	10.1	9.0	8.3
1982/83	9.2	8.8	8.8	10.5	9.5	9.4	9.4	9.6	10.2	8.7	7.9
1983/84	9.0	9.0	8.5	9.8	9.4	9.2	9.2	9.2	9.6	8.6	7.8
1984/85	8.9	8.9	8.6	9.6	9.3	9.1	9.0	9.1	9.6	8.4	7.7
1985/86	8.7	8.2	9.7	9.2	9.2	9.1	8.8	9.0	9.3	8.3	7.6
1986/87	8.5	7.8	9.1	9.0	9.1	8.9	8.6	8.5	9.3	8.2	7.3
1987/88	8.4	7.7	9.0	8.9	9.5	8.8	8.4	8.3	8.8	7.7	7.3
1988/89	8.2	7.9	8.4	8.6	8.4	8.7	8.1	8.9	8.3	7.6	7.2
1989/90	8.0	7.9	9.5	8.3	8.1	8.5	7.8	8.6	8.1	7.6	7.0
1990/91	7.8	8.0	8.5	8.2	8.1	8.6	7.5	7.9	7.9	7.2	6.8
1991/92	7.6	7.2	9.0	7.7	7.6	9.0	7.0	7.7	7.7	6.8	6.7
1992/93	7.0	7.1	8.1	7.5	7.4	8.5	6.3	7.4	6.7	6.2	6.3
1993/94	6.5	6.4	6.7	7.0	7.1	8.2	5.8	6.2	6.3	5.3	6.0
1994/95	6.1	6.4	7.3	5.9	6.4	7.9	5.4	5.8	5.5	4.5	5.4
1995/96	5.6	5.6	7.3	5.4	5.9	7.2	5.0	6.3	5.5	4.3	4.9
1996/97	5.1	5.3	6.5	5.0	5.2	6.0	4.7	5.1	5.2	4.1	4.7
Vaginal (CCP 80.4)											
1981/82	9.9	10.3	8.3	8.7	9.8	10.7	10.1	10.3	10.9	10.2	8.4
1982/83	9.7	9.6	8.6	8.4	10.3	10.4	9.8	10.5	10.9	10.1	8.1
1983/84	9.4	9.7	9.1	8.2	9.2	10.2	9.8	9.5	11.0	9.9	7.7
1984/85	9.4	9.8	8.5	7.9	9.3	10.1	9.6	10.9	10.9	10.0	7.6
1985/86	9.1	8.7	8.6	7.7	8.5	10.1	9.1	9.8	10.9	9.4	7.5
1986/87	9.0	8.9	8.1	7.4	8.1	10.4	8.9	11.4	10.5	9.0	7.3
1987/88	8.4	7.9	7.6	6.9	7.8	9.5	8.5	8.8	9.9	8.6	7.1
1988/89	8.4	8.2	8.1	6.9	7.7	9.3	8.6	9.2	9.0	8.8	6.9
1989/90	8.2	8.5	8.1	7.1	7.4	9.4	8.1	8.8	8.7	8.0	6.8
1990/91	7.9	8.0	7.6	6.6	7.6	9.2	7.7	8.2	8.6	7.8	6.7
1991/92	8.1	7.3	7.1	7.0	7.0	10.7	7.4	10.0	7.9	7.1	6.2
1992/93	6.8	7.0	6.9	5.8	6.6	8.3	6.1	7.4	6.5	6.2	5.9
1993/94	5.8	5.8	6.6	5.7	5.9	7.5	5.0	6.2	5.3	4.3	5.6
1994/95	5.1	5.7	6.1	4.5	4.8	6.9	4.3	5.4	4.9	3.2	4.5
1995/96	4.7	5.0	5.3	4.1	4.5	6.5	4.0	4.8	4.2	3.0	4.0
1996/97	4.1	4.4	4.8	3.6	4.0	5.2	3.8	4.3	4.3	3.0	3.7

Data sources: Statistics Canada, Hospital Morbidity File, 1981/82 to 1994/95; Canadian Institute for Health Information, 1995/96 and 1996/97