

Patterns of ambulatory care use for gynecologic conditions: A national study

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OBJECTIVE: This study was undertaken to describe the site of ambulatory care visits for gynecologic conditions in the United States and to identify patient factors associated with the site of care for these conditions.

STUDY DESIGN: We conducted a national cross-sectional study using data from the 1995-1996 National Ambulatory Medical Care and National Hospital Ambulatory Medical Care Surveys. Visits to private physician offices, hospital outpatient departments, and emergency departments were selected if the principal diagnoses were consistent with 1 of 9 gynecologic categories. Multiple logistic regression was used for all diagnoses to identify factors associated with visits to emergency departments or hospital-based outpatient departments compared with factors associated with visits to private physician offices. Separate regression models were developed for individual diagnoses to test the hypothesis that the factors associated with the site of care would vary across different gynecologic conditions.

RESULTS: There were 23,194,000 visits for gynecologic conditions during the 2-year study period. Genital dysplasia, ovarian disorders, and uterine disorders were associated with greater use of hospital outpatient departments and emergency departments compared with physician offices. There was a 30% to 50% reduction in emergency room use for visits by women aged 45 years and older compared with visits by women aged 18 to 29 years. Emergency department use for several gynecologic conditions was 5 to 8 times greater for visits by women with household income <\$29,000 than for visits by women with household income ≥\$40,000.

CONCLUSION: Specific gynecologic diagnoses and patient factors are associated with greater use of emergency departments or hospital outpatient departments compared with physician offices. The association of these factors with the site of care varies across different gynecologic conditions. (Am J Obstet Gynecol 2001;184:523-30.)

Key words: Ambulatory care, health services use, women's health, gynecology

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In the United States ambulatory medical care is the primary method to obtain health care services for both women and men. Although the largest proportion of ambulatory care visits are made to physician offices, a significant number of ambulatory visits occur at emergency departments and hospital-based outpatient departments. It is important for gynecologists to know what patient factors affect the site of care for gynecologic conditions because a significant number of women view the gynecologist as their primary source of care.^{1, 2} In addition, varying patient demographics and clinical diagnoses found in the use of these sites of care could provide insight to the utilization patterns of women for gynecologic care. For example, patients without a usual source of care have been shown to visit emergency departments more

often than physician offices for chronic, nonurgent conditions.^{3, 4} The use of hospital-based outpatient centers compared with private physician offices has not been fully explored. In addition to providing primary care services and serving as a safety net for women without access to physician offices, outpatient centers provide subspecialty services and may serve as referral centers for certain complex gynecologic diagnoses.

Although there is substantial literature on the general use of emergency departments⁵⁻⁸ and additional reports on outpatient department and office-based visits,^{9, 10} there is little information that specifically addresses use of these ambulatory care sites by women with gynecologic problems.⁹ In this study we used 2 surveys from the National Center for Health Statistics to describe the site of care for major gynecologic conditions in the United States. We also identified patient factors associated with visits to either an emergency department or a hospital-based outpatient department compared with factors associated with visits to a physician office. For example, we tested the hypothesis that women in younger age groups would have greater emergency department use for endometriosis and menstrual disorders compared with women in older age groups. This study furthers previous work on the use of health care services for gynecologic care¹¹ by focusing specifically on ambulatory care visits for several gynecologic disease categories at 3 major sites of care.

Material and methods

Study design. We conducted a national cross-sectional study using data from the 1995-1996 National Ambulatory Medical Care Survey and the 1995-1996 National Hospital Ambulatory Medical Care Survey. First, we described the use of services by outlining patient demographics and clinical diagnoses. Second, we examined the relationship between clinical diagnoses, patient factors, and visits to 3 ambulatory care sites—private physician offices, hospital-based outpatient departments, and emergency departments. Both surveys have been used previously to generate reports on epidemiologic characteristics and on trends in use of medical care.^{12, 13}

Data sources. The National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey are part of the ambulatory care component of the National Health Care Survey conducted by the National Center for Health Statistics to measure health care use across different health care settings. The National Ambulatory Medical Care Survey is a national, probability-based, multistage survey of visits to the offices of non-federally employed physicians in the United States, excluding the primarily hospital-based specialties of anesthesiology, radiology, and pathology.¹⁰ Visits to physician offices serve as the sampling frame. Visits to private, non-hospital-based clinics and health maintenance orga-

nizations are included in the study. A random sample of physicians was selected for inclusion in the survey on the basis of classification by the American Medical Association and the American Osteopathic Association as providing office-based care. Physicians and their office staff completed patient record forms for a random sample of office visits during a randomly assigned 1-week reporting period. The physician response rates for the 1995 and 1996 surveys were 73% and 70%, respectively.

The National Hospital Ambulatory Medical Care Survey is a national, probability-based, multistage survey of visits to emergency departments and hospital-based outpatient departments of nonfederal short-stay hospitals.¹⁴ The survey uses samples of geographically defined areas, focusing on hospitals within these areas, clinics within the hospitals, and patient visits within the clinics. Approximately 438 hospitals in the United States are surveyed each year. Hospital response rates were 96% in 1995 and 95% in 1996.

Creation of data set. Data from the National Ambulatory Medical Care Survey and National Hospital Ambulatory Medical Care Survey have been combined previously by the Center for Health Statistics to provide a comprehensive picture of ambulatory medical care use for asthma,¹⁵ childhood illnesses,¹⁶ and medical drug use.¹⁷ For this analysis data from both surveys were combined by the statistical staff at the Center for Health Statistics, including one of the coauthors (Sylvia Ann Ellison). We were able to combine data from the surveys because (1) there are different sampling frames used for each survey, (2) the *International Classification of Diseases, Ninth Revision (ICD-9)* codes for principal diagnoses are the same for each survey, and (3) the survey items used in the analysis are common to both surveys. These survey items included patient characteristics, expected source of payment, and principal diagnosis. We were able to use data from calendar years 1995 and 1996 because the survey instruments, definitions, procedures, and *ICD-9* coding did not change during these 2 years. By combining the data over a 2-year period, we were able to increase the statistical accuracy of the study and to ensure stable estimates of ambulatory care visits.

Study sample. The study sample consisted of visits to physician offices, hospital-based outpatient departments, and emergency departments in the United States for women aged 18 years and older. Because our goal was to identify factors associated with visits by women seeking care specifically for gynecologic disease, visits were included in the study if the principal diagnosis was consistent with one of the following *International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)* codes.¹⁸ The diagnoses were then grouped into the following categories: (1) lower genital tract infections (herpes, gonorrhea, chlamydia, *Trichomonas*, *Candida*, vulvovaginitis, syphilis, and infectious vulvar lesions), 054.1,

098.1-099, and 112.1; (2) infertility, 628; (3) genital dysplasia (precancerous lesions of the vulva, vagina, and cervix), 622-624; (4) menopausal disorders, 618 and 627; (5) menstrual disorders and hormonal dysfunction (perimenopausal bleeding, dysfunctional uterine bleeding, ovarian hyperestrogenism, ovarian dysfunction, or irregular menstrual cycles), 625 and 256; (6) endometriosis and pelvic pain, 617 and 625; (7) reproductive tract malignancy (carcinoma in situ and invasive disease of the genital tract), 179-184 and 233; (8) inflammatory disease of the upper genital tract (disease of the uterus, ovaries, and fallopian tubes including cervicitis, salpingitis, endometritis, and tubo-ovarian abscess), 614-616; and (9) benign disorders of the uterus and ovaries (benign ovarian cysts or tumors, leiomyomas, endometrial polyps, or hyperplasia), 218-220 and 620-621.¹⁸

We grouped the principal diagnoses into these 9 disease categories on the basis of (1) similarities in clinical symptoms and patient presentation, (2) similarities in diagnostic assessment or management, and (3) conditions affecting different sites within the female reproductive tract. The criteria used for the development of these disease categories have been used in a previous report by the Center for Health Statistics.¹⁶ The diagnostic categories were created by 1 of the authors and reviewed by 2 clinical gynecologists. We excluded ectopic pregnancy because a major proportion of these cases are managed in the hospital rather than in an outpatient ambulatory setting.

Patient characteristics. We analyzed patient characteristics according to an established model for access to care.¹⁹ We categorized patient factors into nonclinical (predisposing or enabling) factors—patient race (white, black, other), age (18-29, 30-44, 45-64, ≥65 years), expected source of payment (private insurance, health maintenance organization, Medicaid, Medicare, self-pay, other, or unknown), median household income (<\$20,000, \$20,000-\$29,999, \$30,000-\$39,999, ≥\$40,000), geographic region (Northeast, South, West, and Midwest), and clinical diagnosis (1 of the 9 gynecologic categories previously outlined). Self-pay refers to patients without insurance for that visit; self-pay does not include deductibles or copayments. Median household income is not routinely collected for either of the two surveys. We estimated median household incomes for the study sample by linking zip code level data from the 1990 US Census. Geographic region refers to the location of the ambulatory care facility.

Site of care. The use of health care services can be characterized by type of service rendered, time interval for providing care, or site of care. For this analysis we focused on ambulatory care visits at 3 different sites of care—private physician offices, hospital-based outpatient departments, or emergency departments. Office-based physicians are defined as doctors of medicine or osteopathy

who are currently in office-based practice and who spend the majority of their time caring for ambulatory patients. Visits to private, non-hospital-based clinics and health maintenance organizations are included as visits to private physician offices. Hospital-based outpatient departments are defined as hospital facilities that provide nonurgent ambulatory medical care under the supervision of a physician. Family planning facilities or abortion clinics are not considered outpatient departments. Emergency departments are defined as hospital facilities that provide care to unscheduled patients who require immediate care.

Statistical analysis. Because the National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey are based on a complex, multi-stage sampling design, it is necessary to weight patient visits to produce unbiased national estimates. These weights adjust for the probability of selection, differences in response rates, and differences between population and respondent characteristics. The National Center for Health Statistics estimation procedure includes inflation by reciprocals of sampling probabilities, adjustment for nonresponse, population weighting ratio adjustments, and the Taylor series linearization method to calculate unbiased variance estimates. The standard error is a measure of sampling variability that occurs by chance when only a sample, rather than an entire universe, is surveyed. The estimates, SE, and 95% confidence intervals for this analysis were computed with SUDAAN, a statistical software program that accounts for the complex sampling design of these surveys. A description of the software and the approach it uses has been published previously.²⁰ The percent distributions and estimates presented reflect average annual estimates based on 1995 and 1996 data.

We compared patient characteristics and the clinical diagnoses for visits to each site of care using χ^2 statistics. Bivariate analysis was used to determine those factors significantly associated with the site of care and to guide the selection of patient factors adjusted for in the multivariate analysis. We used multiple logistic regression to examine the independent association of patient factors and principal diagnoses with visits to physician offices, outpatient departments, and emergency departments; we adjusted for race, age, expected source of payment, median household income, geographic region, and clinical diagnosis.²¹ In these analyses we compared visits to either an outpatient department or an emergency department with visits to a physician office (reference group). We used individual logistic regression models rather than multinomial regression because they provide a more direct analysis and because the individual parameter estimates have been shown to have high efficiency and power.²²

We also developed logistic regression models to measure the association between patient factors and visits to

Table I. Distribution of 23,194,000 visits to ambulatory care

Visit characteristic	No. of visits* (in 1000s)	Physician offices (%)	Hospital outpatient departments (%)	Emergency departments (%)	Statistical significance†
Total ambulatory visits	23,194	87%	8%	5%	
Predisposing factor					
Race					<i>P</i> = .001
White	18,697	89	7	4	
Black	3,959	79	12	10	
Other	538	87	11	2	
Age					<i>P</i> = .001
18-29 y	5,241	80	8	12	
30-44 y	7,553	88	8	5	
45-64 y	6,772	92	7	1	
>64 y	2,468	94	5	1	
Enabling factor					
Payment source					<i>P</i> = .001
Private indemnity	11,585	92	5	3	
Commercial HMO	1,300	90	7	4	
Medicaid	2,925	73	13	13	
Medicare	2,090	92	6	2	
Self-pay	2,407	78	11	11	
Other or unknown	2,887	83	11	6	
Median household income					<i>P</i> = .001
<\$20,000	2,888	80	11	9	
\$20,000-\$29,000	7,266	84	9	7	
\$30,000-\$39,000	5,795	89	7	4	
≥\$40,000	5,209	92	5	3	
Geographic region					<i>P</i> = .001
Northeast	3,960	84	9	7	
Midwest	5,856	85	11	4	
South	8,863	88	6	6	
West	4,514	90	4	5	
Gynecologic diagnosis					<i>P</i> = .001
Genital dysplasia	2,076	81	11	8	
Endometriosis and pelvic pain	3,116	83	7	10	
Genital tract infection	847	81	7	12	
Infertility	711	87	11	12	
Inflammatory disease	3,753	85	6	8	
Reproductive tract malignancy	700	79	20	1	
Menopause	5,361	95	4	0.3	
Menstrual disorders	4,291	90	6	4	
Ovarian and uterine disorders	1,719	84	10	6	

HMO, Health maintenance organization.

*Visits are weighted in thousands and estimated with SUDAAN.

†*P* values < .05 are considered significant.

physician offices, outpatient departments, and emergency departments for each gynecologic condition. We believe these additional analyses for specific gynecologic diagnoses will provide physicians with data on the site of care for the conditions that they encounter most often in their daily practice. Because of small cell sizes, subgroup analyses were not conducted for infertility and reproductive tract malignancy.

Results

Visits for gynecologic conditions in the United States.

There were 23,194,000 visits for gynecologic conditions during the 2-year study period. Private physician offices were the site of care for 20,178,780 (87%) of the ambulatory care visits. There were 1,855,520 visits (8%) to hospital outpatient departments and 1,159,700 visits (5%) to

emergency departments (Table I). The majority of visits by both black and white women were to private physician offices. However, black women had a 2-fold higher percentage of visits to hospital outpatient departments and emergency departments than white women. Compared with women aged 30 to 44 years and 45 to 64 years, women aged 18 to 29 years had the highest percentage of visits to emergency departments (12%) and a similar percentage of visits to hospital outpatient departments. In a dose-dependent fashion, the percentage of outpatient and emergency department visits increased as median household income decreased. There were geographic variations in outpatient and emergency department visits, although the majority of visits in each region were to physician offices. Visits for all gynecologic diagnoses were primarily at private physician offices. However, approxi-

Table II. Factors associated with visits to emergency departments and hospital-based outpatient departments

Demographic and clinical factors	Hospital-based outpatient departments		Emergency departments	
	Odds ratio	95% Confidence interval	Odds ratio	95% Confidence interval
Age (reference 30-44 y)				
18-29 y	0.9	0.7-1.3	1.7*	1.3-2.4
45-64 y	1.0	0.7-1.5	0.5*	0.3-0.8
>64 y	0.4	0.2-0.8	0.3*	0.1-0.8
Race (reference white)				
Black	1.8*	1.1-2.8	1.7*	1.3-2.4
Median income (reference ≥\$40,000)				
<\$20,000	1.7	0.8-4	1.8	0.9-3.7
\$20,000-\$29,999	1.6	0.9-3	2.0*	1.2-3.2
\$30,000-\$39,999	1.1	0.6-1.8	1.3	0.8-2.1
Payment source (reference private insurance)				
HMO	0.8	0.5-1.4	0.5*	0.3-0.8
Medicaid	3.3*	1.9-5	3*	1.9-5.3
Medicare	2.2	1-5	2.6	1-6.8
Self-pay	2.6*	1.3-5	3*	2-5.6
Other or unknown	2.7*	1.6-5	2	1-4
Geographic region (reference South)				
Northeast	1.3	0.6-3	1.0	0.5-2.1
Midwest	2.7*	1.2-6	1.1	0.5-2
West	3*	1.5-7	2.5*	1.2-5
Clinical diagnosis (reference menopause)				
Endometriosis and pelvic pain	1.9	1-3	14*	6-32
Genital dysplasia	2.6*	1.4-5	12*	5-30
Infertility	2.5	0.8-8	3	0.4-16
Inflammatory disease of genital tract	2.5	0.8-8	3	3-16
Genital tract infection	1.2	0.4-3	8*	3-26
Genital malignancy	5.5*	2-16	2	0.4-13
Menstrual and hormonal disorders	1.1	0.6-2	5*	2-11
Ovarian and uterine disorders	2*	1.2-3.7	9*	5-30

HMO, Health maintenance organization.

*Denotes significant odds ratio because the 95% confidence interval does not include 1.

mately 8% of visits for genital dysplasia were at emergency departments. Additionally, 10% of visits for endometriosis or pelvic pain and 12% of visits for lower genital tract infection were to emergency departments. One fifth of the visits for gynecologic malignancy occurred at outpatient departments.

Factors associated with outpatient and emergency department visits. Table II shows the odds ratios for visits to a hospital outpatient department compared with visits to a private physician office, as well as for visits to an emergency department compared with visits to a private physician office. The odds of emergency department use were 1.7 times greater for visits by women aged 18 to 29 years compared with women aged 30 to 44 years. There was a 30% to 50% reduction in emergency department visits for women aged 45 years and older compared with women aged 30 to 44 years. The odds of outpatient department (odds ratio, 1.8; 95% confidence interval, 1.1-2.8) and emergency department (odds ratio, 1.6; confidence interval, 1.1-2.5) use were greater for visits by black women compared with visits by white women. Visits covered by health maintenance organizations were associated with a 50% reduction in emergency department use. However, the odds of emergency department and hospital out-

patient department visits were 3 times greater for visits covered by Medicaid compared with visits covered by private insurance. The odds of outpatient department use and emergency department use were 2.5 to 3 times greater for visits in the West compared with visits in the South.

For clinical diagnoses, the odds of emergency room use were 12 to 14 times greater for genital dysplasia, endometriosis, and pelvic pain compared with visits for menopause. The odds of emergency room use were 7 to 8 times greater for visits for inflammatory disease and lower genital tract infection and 5 to 9 times greater for menstrual, hormonal, uterine, or ovarian disorders compared with visits for menopause. Genital malignancy was associated with greater hospital outpatient department use.

Factors associated with visits for specific gynecologic disease categories. Tables III and IV show the results of the logistic regression models for individual conditions. As shown in Table III, the odds of emergency department use for lower genital tract infections and for menstrual or hormonal disorders were 5 to 8 times greater for visits by patients with a median household income <\$29,000 than for visits by patients with median household income ≥\$40,000. The odds of emergency department use for noninflamma-

Table III. Factors associated with emergency department visits for individual gynecologic conditions in United States

Patient characteristic	Benign disease of ovary or uterus	Genital dysplasia	Endometriosis and pelvic pain	Genital infection	Inflammatory disease	Menstrual disorders
Age (reference 30-44 y):						
18-29 y	1.0 (0.3-3.5)	2 (0.8-4.6)	3* (1.3-5.7)	3 (0.7-9)	1.1 (0.5-2.1)	5* (1.6-12)
45-64 y	0.3 (0.1-1.0)	0.8 (0.2-3)	0.1 (0.01-0.5)	1.2 (0.1-16)	0.3 (0.1-1.3)	0.7 (0.2-3)
>64 y	—†	—†	—†	—†	—†	—†
Race (reference white)						
Black	1.1 (0.2-7)	5.4* (1.9-16)	2 (0.8-4)	0.2 (0.04-1.0)	2.2 (1.0-4.7)	3.1* (1.4-7)
Median income (reference ≥\$40,000)						
<\$20,000	2.2 (0.2-31)	2 (0.4-11)	1.1 (0.2-5.5)	7 (0.6-81)	1.2 (0.3-4.8)	5.4 (0.9-32)
\$20,000-\$29,999	3.4 (0.7-1.7)	1.4 (0.3-6)	1.3 (0.4-4)	8* (1.2-54)	1.4 (0.4-4.4)	5.1* (1.4-18)
\$30,000-\$39,999	3.6 (0.8-17)	1.2 (0.2-6)	0.7 (0.2-2.4)	1.8 (0.2-19)	2 (0.6-6.7)	1.2 (0.3-4.6)
Payment source (reference private insurance)						
HMO	0.2 (0.02-1.7)	0.8 (0.2-3.3)	0.3 (0.1-0.8)	0.2 (0.01-3)	0.7 (0.2-2.6)	0.8 (0.2-3)
Medicaid	7 (0.7-64)	3 (1-12)	6* (2.2-18)	0.9 (0.1-7.8)	5 (1.9-14)	2 (0.6-7.7)
Medicare	—†	—†	—†	—†	—†	—†
Self-pay	11* (2.3-51)	10* (2-51)	2 (0.5-4.7)	0.4 (0.04-4)	8* (3-21)	4* (1.2-13)
Geographic region (reference South)						
Northeast	1.0 (0.2-5)	0.2 (0.1-1)	2 (0.6-5.5)	1.3 (0.2-11)	0.8 (0.3-2.6)	2.5 (0.5-14)
Midwest	1.0 (0.2-5)	0.4 (0.1-2)	1.0 (0.3-3)	2.5 (0.4-16)	0.9 (0.3-3.5)	0.9 (2.5-5.6)
West	3 (1-13)	0.6 (0.1-4)	4* (1.2-14)	2.5 (0.3-20)	2 (0.6-6.8)	9* (1.5-49)

HMO, Health maintenance organization. Numbers in the table represent the odds ratio and 95% confidence interval of visits to an emergency department versus a physician office for patients with a particular characteristic, compared with patients in the reference group, adjusted for all other characteristics (age, race, income, payment source, and geographic region) except the characteristic of interest. An odds ratio >1 indicates greater use of emergency departments; an odds ratio <1 indicates less use of emergency departments.

*Denotes significance because the confidence interval does not include 1.

†Too few cases to estimate reliably because $n < 30$.

tory ovarian or uterine disease, genital tract dysplasia, inflammatory disease of the genital tract, and menstrual or hormonal disorders were 4 to 11 times greater for visits by patients with self-pay compared with visits by patients with private, indemnity insurance. Compared with white patients, black patients were significantly associated with emergency department use for genital tract dysplasia and menstrual or hormonal disorders. The odds of emergency department use for endometriosis, pelvic pain, and menstrual or hormonal disorders were 3 to 5 times greater for visits by women aged 18 to 29 years compared with visits by women aged 30 to 44 years. In addition, the odds of visits to emergency rooms for endometriosis and menstrual disorders were 4 to 9 times greater for visits in the West compared with visits in the South.

The odds of outpatient department use for uterine disease or ovarian disease and for lower genital tract infection by patients with median household income <\$39,000 were 5 to 11 times greater compared with patients with median household income ≥\$40,000. In addition, the odds of hospital-based outpatient department use for menopausal disorders, genital dysplasia, endometriosis, or pelvic pain for visits by patients covered by Medicaid were 4 to 12 times greater compared with visits by patients with private, indemnity insurance. Outpatient department visits for genital tract dysplasia were 3 to 4 times greater for black women compared with white women. The odds of outpatient use for genital dysplasia and menopause were 5 times greater in the West compared with the South.

Comment

This study offers an analysis of ambulatory care use for gynecologic conditions in the United States. We identified patient characteristics and clinical diagnoses associated with emergency department and hospital-based outpatient department visits for gynecologic conditions on a national level. The results of this study may help to identify barriers to gynecologic care and to provide interventions that will provide women with access to the most appropriate site of care. For example, some barriers to care may be directly related to the health care system and therefore amenable to changes in health care policy. Other barriers could be linked to physician practice patterns or patient factors.¹⁹ We found that 87% of ambulatory care visits occur at physician offices, suggesting that the majority of women are able to get care at community-based settings. The remaining visits (13%), which occurred at outpatient centers and emergency departments, deserve further study.

Payment source (primarily Medicaid or self-pay), median household income, geographic location, age, and race were associated with greater use of emergency departments and hospital-based outpatient departments compared with use of private physician offices for all conditions. One possible explanation for the association of payment source with the site of care is the limited availability of physicians or health care facilities that provide services to Medicaid or self-pay patients. Furthermore, several black women in the analysis who were covered by Medicaid or self-pay also encountered limited availability

Table IV. Factors associated with hospital outpatient department visits for individual gynecologic conditions in United States

Factors	Ovarian and uterine disorders	Genital dysplasia	Endometriosis and pelvic pain	Genital infection	Inflammatory disease of upper genital tract	Menstrual and hormonal disorders	Menopause
Age (reference 30-44 y)							
18-29 y	0.9 (0.3-3.1)	0.9 (0.4-2.3)	0.9 (0.4-1.8)	1.7 (0.4-6.3)	1.1 (0.5-2.3)	0.8 (0.3-2)	—†
45-64 y	0.7 (0.3-2.1)	1.2 (0.5-3)	0.6 (0.2-2.6)	2 (0.2-17)	1.5 (0.6-4)	1.3 (0.6-2.8)	0.6 (0.2-1.6)
>64 y	—†	0.3 (0.1-1.5)	—†	2.2 (0.1-48)	—†	—†	0.8 (0.2-3.2)
Race (reference white)							
Black	1.7 (0.5-6)	3.7* (1.2-10)	4* (1.6-11)	0.5 (0.1-3)	1.8 (0.8-4.3)	2.1 (0.9-5)	2.6 (1.0-7)
Median income (reference ≥\$40,000)							
<\$20,000	5.5* (1.5-21)	1.7 (0.4-7.3)	0.3 (0.1-1.1)	11* (1.1-114)	3.3 (0.6-17)	1.3 (0.3-5.8)	1.4 (0.4-5)
\$20,000-\$29,999	3 (0.8-10)	1.2 (0.5-7.7)	0.3 (0.1-1)	7 (0.7-70)	2.3 (0.6-9)	1.9 (0.5-7)	3* (1.2-7.8)
\$30,000-\$39,999	1.8 (0.5-6.8)	0.8 (0.2-3.4)	0.2 (0.1-0.8)	1.1 (0.1-11)	5* (1.1-23)	1.0 (0.3-3)	0.9 (0.2-3.5)
Payment source (reference private insurance)							
HMO	1.4 (0.3-7.4)	1.8 (0.4-7.8)	0.4 (0.1-1.5)	1.7 (0.2-15)	0.8 (0.2-2.8)	0.7 (0.2-2)	0.7 (0.2-2.3)
Medicaid	3 (0.5-19)	9* (2.7-29)	12* (5.2-25)	1.3 (0.2-8)	2 (0.5-5)	2.4 (0.8-7.5)	3.7* (1.1-13)
Medicare	—†	6* (1.2-27)	—†	—†	8* (1.5-38)	—†	0.8 (0.2-3.5)
Self-pay	9* (2.2-34)	6* (1.8-18)	6* (1.7-18)	1.0 (0.2-8)	0.9 (0.3-3.2)	4* (1.2-11)	1.0 (0.2-4)
Geographic region (reference South)							
Northeast	1.4 (0.3-6)	0.6 (0.2-3.3)	2.3 (0.8-6.7)	0.9 (0.1-10)	0.4 (0.2-1.3)	0.8 (0.3-2.6)	1.3 (0.3-4.8)
Midwest	3 (0.7-12)	1.1 (0.2-5.5)	3 (1.0-10)	2.4 (0.2-2.3)	2 (0.5-5)	2 (0.6-8)	3 (0.8-11)
West	2.6 (0.6-12)	2 (0.5-11)	5* (1.4-2.0)	2 (0.2-18)	3 (0.8-10)	1.4 (0.4-4.7)	5* (1.3-18)

HMO, Health maintenance organization. Numbers in the table represent the odds ratio and 95% confidence interval of visits to a hospital outpatient department versus a physician office for patients with a particular characteristic, compared with patients in the reference group, adjusted for all other characteristics (age, race, income, payment source, and geographic region) except the characteristic of interest. An odds ratio >1 indicates greater use of hospital outpatient departments; an odds ratio <1 indicates less use of hospital outpatient departments.

*Denotes significance because the confidence interval does not include 1.

†Too few numbers to estimate.

of providers. Previous studies have reported limited access to particular medical services among low-income and uninsured women.^{2, 23} Many underinsured or uninsured patients do not have a primary physician and may use emergency departments for care or seek treatment at hospital outpatient centers.³ The significant geographic differences most likely reflect variations in the type of health care settings available in different areas of the country.

Compared with women aged 30 to 44 years, women aged 18 to 29 years had greater emergency room use. In the subgroup analysis we found that women aged 18 to 29 years also had greater use of emergency departments specifically for endometriosis, pelvic pain, and menstrual disorders. Greater use of emergency departments by women aged 18 to 29 years may be caused by gaps in insurance coverage or in eligibility for Medicaid. Alternatively, this finding may reflect a lack of appropriate care-seeking behavior by the patient. Younger women may have different perceptions of the urgency of certain clinical problems such as menstrual disorders or pelvic pain.²⁴

After adjustment for other patient characteristics, a significant association was found between genital tract dysplasia and hospital outpatient department use and emer-

gency department use. In the subgroup analysis, black patients, Medicaid, and self-pay were associated with emergency department and hospital outpatient department use for genital dysplasia. The greater use of outpatient departments most likely reflects the use of specialized care that is needed for dysplasia and is readily available at hospital-based facilities; this is particularly true for Medicare recipients who are older and who may have vulvar dysplasia that would require special diagnostic techniques. However, the use of emergency departments for genital dysplasia suggests poor access to care and follow-up for many women. The inappropriate use of emergency departments for dysplasia may be caused by a lack of available clinicians, by barriers within the health system that limit access to more appropriate clinical care settings, or by lack of patient education regarding the appropriate follow-up for the condition. Therefore combined efforts of physicians, patient educators, and health policy makers would be needed to develop effective interventions to improve care.

Compared with patients who had private insurance, patients with Medicare had greater outpatient department use for inflammatory and benign disease of the uterus and ovaries and greater emergency department use for lower genital tract infections. The complex diagnostic

tests used to evaluate uterine and ovarian disease in elderly women would most likely be performed at a hospital-based outpatient center where specialized equipment and personnel are readily available. Women who are eligible for Medicare can have genital infections that occur concomitantly with other chronic illnesses (eg, diabetes mellitus) and require evaluation in an acute care setting. However, as the number of elderly women increases in the United States, health policy makers and clinicians may need to develop alternative sites of care to serve the acute care needs of the elderly.

There are limitations to this study. Because the study is a secondary data analysis, there may be unmeasured factors that we are unable to adjust for in the logistic regression models. We were unable to adjust for severity of disease or for the existence of other major comorbidities. Severity of disease might help to explain emergency department use for specific conditions. Visits complicated by comorbidities might be associated with greater use of hospital-based outpatient departments that offer more complex diagnostic tools than those routinely available in private physician offices. The survey data are based on visits rather than individual patients. Therefore there could be multiple visits to different settings by the same patient. Finally, data on other factors that can adversely affect access to care, such as education and employment status, are not included in the surveys.

Despite these limitations, this analysis provides useful information on the factors associated with emergency department and hospital-based outpatient department use compared with private physician office use. The results confirm conventional wisdom and quantify the magnitude of impaired access to traditional outpatient settings for different groups of patients and for specific gynecologic conditions. Although nonacute care provided in emergency department settings is clearly not optimal, the role of hospital-based departments in providing nonacute care and the relation to physician office care for gynecologic conditions should be evaluated. The barriers to optimal settings need to be addressed by policy makers and health care providers to improve gynecologic care for women in the United States.

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