

# Women Commonly Seek Care for Rosacea: Dermatologists Frequently Provide the Care

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*Rosacea is a common dermatosis affecting the central portion of the face. The purpose of this study is to describe the demographics of patients and the treatments prescribed. Data on rosacea visits from 1990 to 1997 were obtained from the National Ambulatory Medical Care Survey. There were 1.1 million outpatient visits for rosacea annually in the United States. Most rosacea patients were Caucasian (96%). Most visits were by women (69%), and the mean age (SD) of patients was 50±17 years. Visits to dermatologists accounted for 78% of visits. Common comorbid diagnoses included actinic keratoses, acne and cysts, and seborrheic and contact dermatitis.*

*Topical metronidazole was the most commonly prescribed treatment; tetracycline was the most commonly prescribed systemic therapy. Combination treatment with an oral and a topical agent was commonly used. Because rosacea appears most often in fair-skinned women, these patients may benefit from the textural features and safety profiles of certain topical metronidazole preparations newly available and from oral antibiotics (eg, tetracycline). People with rosacea should be aware of the experience that dermatologists have in treating this disorder.*

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Funding for this study was provided by Dermik through an unrestricted research grant to the Department of Dermatology at Wake Forest University. The study was performed at the Bristol-Myers Squibb Center for Dermatology Research.

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Rosacea is estimated to affect as many as 1 in 20 Americans.<sup>1</sup> It typically presents in persons older than 40 years but can present in people of all ages, including children.<sup>2</sup> The condition is believed to occur most often in fair-skinned individuals but also has been reported in individuals who are more highly pigmented.<sup>3</sup> It is characterized by erythema, telangiectasia, papules, and pustules of the face.

The clinical spectrum of rosacea is quite broad. One classic presentation is that of rhinophyma, as typified by the appearance of the enlarged nose of W.C. Fields. Perioral dermatitis appears quite differently, with its dermatitic appearance in a perioral (and sometimes perinasal and periocular) distribution; however, it also may be considered within the clinical spectrum of rosacea. Blepharitis, conjunctivitis, and other ocular lesions are occasionally seen and may occur with little, if any, skin involvement. Other conditions affecting the face that must be differentiated from rosacea include acne, seborrheic dermatitis, tinea, and cutaneous lupus erythematosus.

The cause of rosacea is unknown. Possible etiologic factors include vascular reactivity, environmental factors (eg, consumption of alcohol and hot beverages), and infectious components. Rosacea is a chronic condition characterized by flare-ups and remissions. Patients often require treatment of acute exacerbations, followed by maintenance therapy. Topical metronidazole and oral antibiotics are the treatments most often used. Others include topical sulfacetamide preparations, isotretinoin and other retinoids, and corticosteroids (although corticosteroids sometimes exacerbate the condition). Laser treatments for the vascular component also may be used in some patients. Newer topical metronidazole preparations have been introduced

to enhance compliance and address cosmetic needs of many rosacea sufferers. The purpose of this observational study is to characterize patients seeking medical care for rosacea, the specialty of physicians treating these patients, and treatment regimens prescribed.

## Methods

The National Ambulatory Medical Care Survey (NAMCS) is a national, probability-sample survey of office-based physicians in the United States. It is conducted by the Division of Health Care Statistics, the National Center of Health Statistics, and the Centers for Disease Control and Prevention.<sup>4</sup> Nonfederal physicians of all specialties (except anesthesiology, pathology, and radiology) classified by the American Medical Association or the American Osteopathic Association as fulfilling office-based patient care are included in the survey.

The NAMCS includes data on individual outpatient office visits, including demographics, physician diagnoses, and medications administered. National estimates describing the utilization of ambulatory medical care services in the United States are produced by assessing the data using a weighting factor assigned to each of the physician-patient encounters. NAMCS data provide a picture of healthcare utilization in the United States, not a direct assessment of either disease incidence or prevalence. A limitation of the NAMCS data is that it is dependent on accurate reporting by healthcare providers.

Data from 1990 through 1997 contain 272,830 records used to estimate 5.76 billion office-based physician visits in the United States. Visits for rosacea were identified by an ICD-9 code of 695.3. This code encompasses rosacea and perioral dermatitis, the latter representing part of the clinical spectrum of rosacea. Up to 3 diagnoses were listed for each visit. For analysis purposes, visits with other diagnoses were excluded so that all medications could be ascribed to rosacea treatment. Up to 6 medications are listed in each record, as well as all forms of drug delivery, including prescription, sampling, and direct administration of drugs.

Data were analyzed for demographic factors of patients, the specialty of the physician, comorbid conditions, and medications prescribed. Based on US government-estimated census populations, the per capita number of visits per year was determined and reported as visits per 1000 individuals. Population distributions were similar between 1990 and 1997; therefore, the midpoint 1994 census was chosen (ie, 260 million people).<sup>5</sup> Data for per capita visits by

physician specialty were obtained by determining the number of visits to physicians in a specific specialty and dividing by the total number of physicians in that specialty in the midpoint year, 1994.

Medications are encoded in the NAMCS using unique identification numbers listed in the NAMCS data file documentation.<sup>6</sup> Secondary assignments were made for drug codes not listed in, but similar to, a code for a common rosacea treatment in the data file documentation, as previously described.<sup>7</sup> Invalid codes 19231 and 19228 were reassigned to 19233, the code for metronidazole. Likewise, 92128, an invalid code, was reassigned to 92127 (topical metronidazole); 31044 and 31048 to 31045 (tetracycline); 30032 to 30035 (Sumycin [tetracycline hydrochloride capsules]); 9030 and 9032 to 9033 (DesOwen<sup>®</sup> [desonide]); 29310 to 29810 (Sulfacet-R<sup>®</sup> acne lotion [sodium sulfacetamide]); 10354 to 10355 (doxycycline); 11664 to 11665 (erythromycin); 30478 to 30468 (T-Stat<sup>®</sup> [erythromycin solution]); 26472 to 26475 (Retin-A<sup>®</sup> [tretinoin]); and 94134 to 94143 (Shur-Cleans<sup>®</sup> [wound cleanser]).

All metronidazole listings not specified as systemic were assumed to represent topical treatment. The medicine code 93447 was invalid; however, a reassignment could not be made because it was not similar to other medicine codes. Medication 2158 is listed as *antibiotic agent*; we assumed, for categorization purposes, that this was a systemic medication. Of the 69 different medications used for rosacea treatment identified in the study, these latter 2 assumptions affected small numbers of visits and would not be expected to significantly change the results. *Undefinable* medication listings accounted for less than 2% of visits. For analysis purposes, all records in which a medicine was coded as *other* (99980) or *illegible* (99999) were excluded.

All medications were then categorized as topical or systemic agents. We then assessed the fraction of visits that was associated with monotherapy (topical or systemic) or combination therapy (one or more topical agents plus one or more systemic agents). All data analyses were performed using the SAS System.

## Results

There were an estimated 8.9 million visits for rosacea (ie, 1.1 million rosacea visits per year). Females accounted for 69% of the visits. Rosacea visits were nearly all by Caucasian (96%), non-Hispanic (94%) patients. The age distribution of rosacea patients was quite broad, with a mean (SD) of 50±17 years (minimum 0 year, maximum 90 years). On average, there were 4.3 visits per 1000 people per year in the United States.

## ROSACEA DEMOGRAPHICS

Table 1.

### Top Ten Comorbid Diagnoses at Rosacea Visits

Rank	Diagnosis	Total Listings	% of All Rosacea Visits
1	Actinic keratoses	671,245	8
2	Acne and cysts	560,440	6
3	Seborrheic dermatitis	303,976	3
4	Contact dermatitis	294,829	3
5	Benign tumors	230,742	3
6	Seborrheic keratosis	206,107	2
7	Warts	175,126	2
8	Nonmelanoma skin cancer	165,904	2
9	Psoriasis	159,292	2
10	Stasis dermatitis	141,471	2

Table 2.

### Demographics of Patients Seen With a Diagnosis of Rosacea

	All Rosacea Visits	Rosacea Visits With No Other Diagnoses
Female, %	69	72
Caucasian, %	96	98
Age, mean (SD), y	50±17	48±17
Treated by a dermatologist, %	78	89

Of the 8.9 million visits for rosacea, 6.9 million (78%) were to dermatologists. Visits to family physicians and internists accounted for 8.1% and 5.3% of visits, respectively. Visits to ophthalmologists accounted for another 4.1%. Taking into account the number of physicians in each specialty, as well as the number of years in the study period, it is possible to estimate the average number of rosacea visits per specialist per year. Dermatologists reported approximately 138 rosacea visits per year. Among the other specialties analyzed, ophthalmologists managed the most rosacea visits at 3.3 visits per year. Other physicians reported less than 2 cases per year.

Rosacea was the only condition diagnosed at 38% (3.4 million) of the visits. Comorbid conditions were diagnosed at 62% of visits. The most common comorbid diagnoses included actinic keratoses, acne and cysts, seborrheic and contact dermatitides, and benign tumors (Table 1).

To determine the medications used to treat rosacea, we analyzed the 3.4 million visits at which rosacea was the only diagnosis listed. The demographics of patients seen at these visits were generally similar to the demographics for all rosacea visits (Table 2). Medications were listed in 91% of the visits.

Table 3.

## The 10 Most Commonly Prescribed Medications for Rosacea

Rank	Drug	Total Listings	% of Visits
1	Topical metronidazole	1,012,360	29
2	Tetracycline	837,550	24
3	Erythromycin	262,936	8
4	Topical desonide	217,536	6
5	Topical hydrocortisone	189,785	5
6	Minocycline	189,461	5
7	Topical retinoic acid	181,317	5
8	Topical clindamycin	171,200	5
9	Doxycycline	141,788	4
10	Topical sulfacetamide	121,143	3

Of the 10 most common treatments, 7 were topical or systemic antibiotics, with topical antibiotics accounting for 38% of visits, and systemic antibiotics accounting for 39% of visits (Table 3). The most commonly prescribed medications were topical metronidazole (29% of visits), tetracycline (24% of visits), and erythromycin (8% of visits). Low-potency topical corticosteroids desonide and hydrocortisone were prescribed at 6% and 5% of visits, respectively. Less commonly prescribed topical medications included other antibacterials, antifungals, and benzoyl peroxide. Other systemic medications included oral antifungals, systemic corticosteroids, isotretinoin, and antihistamines. Treatment with a combination of topical and systemic therapy was the most common strategy and was used in 30% of visits. Monotherapy with a systemic agent was used in 27% of visits, and monotherapy with a topical agent was used in 21% of visits.

### Comment

Rosacea affects many different types of people but is more than twice as common in females than males. Some researchers suggest that rosacea may be diagnosed more in women because women are more likely to seek a physician's care for this problem. However, Berg and Liden<sup>8</sup> demonstrated in a randomized epidemiologic study that rosacea is more common in women and is not a conse-

quence of their tendency to consult physicians more frequently.

Most patients in our study were Caucasian and non-Hispanic. This is consistent with the findings that rosacea occurs more often in fair-skinned individuals—usually those of northern and eastern European descent, particularly Celtic, English, Scottish, and Scandinavian—than in dark-skinned individuals.<sup>1</sup> However, it can affect individuals with darker pigment, and a small percentage of black and Hispanic patients with rosacea were included in our study. Browning et al<sup>3</sup> suggest in their study of ocular rosacea in blacks that rosacea may be underdiagnosed in this race because of the difficulty of evaluating typical facial lesions because of skin pigmentation. This underdiagnosis could be a factor in our observational study.

Rosacea is considered an age-related disorder and is more typically diagnosed in patients 40 years and older. In our observational study, patients in this category accounted for approximately 57% of total patients. The other 43% were distributed throughout patients of all ages, even children younger than 10 years. Although rosacea can affect children, its occurrence in this age group is believed to be rare.<sup>2</sup> Our study included as many as 81,000 patients younger than 10 years. This seems like an abnormally high number and could be the result of data-entry error because no real prevalence for childhood rosacea has been established. However, the

medications administered to these patients are consistent with those used to treat rosacea. This may represent an overdiagnosis by physicians or perhaps inaccurate diagnoses in which variants of acne are considered in the spectrum of perioral dermatitis.

Individuals with rosacea should be aware that the disorder is common and treatable. Topical antibiotics are the mainstay of rosacea treatment in the United States, but both oral and topical agents may be used. Advantages of topical antibiotics include reduced risk of adverse events, such as gastrointestinal disorders, vaginal yeast infections, drug interactions, and other risks associated with oral antibiotics. Given the demographics of rosacea patients observed in this study, newer formulations of topical metronidazole may be advantageous. Treatments are designed to be cosmetically pleasing while maintaining efficacy.<sup>9,10</sup> Because women tend to apply more topical products to their faces than men and children do, the minimization of irritants should help reduce the risk of irritation from topical therapy. Finally, efficacy with once-daily dosing should improve patient compliance compared with other treatments.<sup>9,10</sup>

Patients with red facial coloration should be aware that there are various possible causes. Dermatologists have more experience in the diagnosis and management of rosacea than other physicians. Similarly, they manage more patients with other facial conditions that must be differentiated from rosacea—such as actinic keratoses, seborrheic and other forms of dermatitis, acne, skin cancer, and psoriasis.<sup>7,11,12</sup> Our data indicate that rosacea is frequently seen in combination with other diagnoses, further complicating the difficulty of accurately diagnosing the condition and effectively treating it. The diagnosis of rosacea can be made based on clinical criteria and usually does not require laboratory testing. When consulting a physician about red facial eruptions, patients should be aware that dermatologists are less likely to order blood tests or other laboratory tests to diagnose skin disease (Utterback RS, Feldman SR, Federman D, et al, unpublished data, 2001). In addition, they have more experience using the topical and systemic therapies available.

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