



BRIEF REPORT

Why Do Patients in the United States Seek Care from Dermatologists?

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ABSTRACT

Introduction: While the diagnoses made at visits to the dermatologist are well characterized, the reasons patients visit the dermatologists are not well described. Understanding why patients present to dermatologists could be helpful in identifying patients' unmet needs and developing outreach programs to improve patients' access to care. The purpose of this study is to characterize the reasons why US patients sought medical attention from dermatologists.

Methods: We evaluated the National Ambulatory Medical Care Survey (NAMCS) between 2007 and 2018, the most recent years available, to characterize the most common reasons patients visit the dermatologist.

Results: Sixty-four thousand records were identified in the NAMCS estimating 1.55 billion visits to the dermatologist in the US during the

study period. The most common reasons for visits were skin examination (7.8%), skin lesion (7.5%), and discoloration/abnormal pigmentation (7.3%). For patients ≤ 18 years, the most common reasons for visits were acne (28%), warts (7.7%), and skin rash (6.4%). For patients 19–65 years and ≥ 66 years, skin examinations (7.7%) and skin lesions (10%) were the most common reasons for visits to dermatologists, respectively.

Conclusion: By identifying the most common reasons for visits to the dermatologist, we can improve our understanding of a patient's needs and appropriate health outreach resources to improve patients' access to care.

PLAIN LANGUAGE SUMMARY

Skin conditions affect 1.9 billion people globally. While we understand the most common diagnoses made at a dermatology visit, the reasons why patients visit the dermatologist have not been evaluated. We utilized an annual survey conducted by the Centers for Disease Control and Prevention (CDC), the National Ambulatory Medical Care Survey (NAMCS), to identify the most common reasons patients visited the dermatologist between the years 2007 and 2018, the most recent years of the survey available. The most common reasons for

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visits were skin examination, skin lesion, and discoloration/abnormal pigmentation. For patients ≤ 18 years, the most common reasons for visits were acne, warts, and skin rash. For patients 19–65 years and ≥ 66 years, skin examinations and skin lesions were the most common reasons for visits to dermatologists, respectively. By identifying the most common reasons for visit to the dermatologist, we can better understand a patient's needs and improve a patient's ability to access care for skin conditions.

Keywords: Acne; Skin exam; Skin lesion; Pigment disorders; National Ambulatory Medical Care Survey (NAMCS); Age

Key Summary Points

Why carry out this study?

While the diagnoses made at visits to the dermatologist are well characterized, the reasons patients visit dermatologists are not well described

Understanding why patients present to dermatologists could be helpful in identifying patients' unmet needs and in developing outreach programs to improve patients' access to care

We evaluated the National Ambulatory Medical Care Survey (NAMCS) between 2007 and 2018, the most recent years available, to characterize the most common reasons patients visit the dermatologist

What was learned from the study?

The most common reasons for visits were skin examination, skin lesion, and discoloration/abnormal pigmentation

By identifying the most common reasons for visit to the dermatologist, we can improve our understanding of a patient's needs and appropriate health outreach resources to improve patients' access to care

INTRODUCTION

Skin conditions affect 1.9 billion people and are the fourth leading cause of nonfatal disease burden worldwide [1]. The diagnoses made at visits to dermatologists are well characterized. The most common dermatologic diagnoses include acne, dermatitis, cancerous and pre-cancerous lesions, and benign skin growths [2]. The reasons these patients visit dermatologists, however, are not as well characterized. Understanding why patients present to dermatologists could be helpful in identifying patients' unmet needs and developing outreach programs to improve patients' access to care. The purpose of this study is to characterize the reasons why US patients sought medical attention from dermatologists.

METHODS

We conducted a population based, cross-sectional analysis utilizing the National Ambulatory Medical Care Survey (NAMCS) between the years 2007 and 2018 which are the most recent years available. The NAMCS is an ongoing survey that provides objective and reliable information about the use of non-hospital based office-based medical services in the US. The annual survey is conducted by the Division of Health Care Statistics at the National Center for Health Statistics (NCHS) of the Centers for Disease Control and Prevention (CDC). The NAMCS surveys a large, generalizable sample of physicians and advanced practitioners and has achieved high response rates of up to 77% [3, 4]. Hence, the NAMCS is a valuable resource for understanding trends in outpatient dermatology visits [3].

During a randomly selected week of the year, non-federally employed, office-based physician practices are surveyed. The sample is derived from a three-stage process. One hundred twelve geographic areas (townships, counties, or equivalents) in the US are sampled, and then physicians and non-physician providers are randomly selected from American Medical Association (AMA) and American Osteopathic Association (AOA) master files. For each

provider, a 1-week period from the year is sampled, and a proportion of visits is systematically selected. The AMA defines office-based as all specialties providing office-based care, excluding radiology, pathology, and anesthesia. Selected physicians, nurse practitioners, and physician assistants document patient demographic information, reason for visit, diagnosis, and therapeutics prescribed for each visit sampled.

Visits are assigned a weighing factor, which accounts for the time and geography where the visit took place. Unbiased national estimates are produced by a multistage estimation procedure which includes four components: (1) inflation by reciprocals of the probabilities of selection, (2) nonresponse adjustment, (3) a ratio adjustment to fixed totals, and (4) weight smoothing [5]. This accounts for limitations in sampling and allows for the estimation of nationally representative estimates [6].

The NAMCS captures up to five reasons for visit for each visit sampled. The reason for visit is documented by the physician or non-physician provider, not the patient. The reason for visit is then coded by the NCHS according to the “Reason for Visit Classification and Coding Manual” [7]. If the reason for visit did not fit into a previously established reason for visit code, the reason for visit was classified as “other diseases of skin.” This category included chief complaints such as allergic skin reactions, hidradenitis suppurativa, keloids, rosacea, urticaria, and others. Although hundreds of reasons for visit to the dermatologist were included in the NAMCS results, we identified the ten most common reasons for visit to the dermatologist in National Ambulatory Medical Care Survey (NAMCS) from 2007 to 2018. Age groups were defined as < 18 years, 19–65 years, and ≥ 66 years.

The frequency of visits was determined utilizing survey procedures of SAS v9.4 (SAS Institute Inc., Cary, NC, USA). Specifically, the procedure, PROC SURVEYFREQ, was employed, and weighing factors were assigned to account for the complex survey design of the NAMCS. All analyses ensured adequate sample size for weighting.

The Ethics Review Board at the National Center for Health Statistics (which executes the NAMCS) has given IRB approval for the NAMCS [8]. Only one IRB must approve the NAMCS, so IRB from our institution was not required.

RESULTS

Sixty-four thousand records were identified in the NAMCS estimating 1.55 billion visits to the dermatologist in the US during the study period. Prior to stratifying by age, the most common reasons for visits were skin examination (7.8%), skin lesion (7.5%), and discoloration/abnormal pigmentation (7.3%) (Table 1). The ten most common reasons for visit accounted for 53% of all visits to the dermatologist. Of the ten most common reasons for visit, the patient felt they knew the diagnosis for their reason for visit in 25% of visits (i.e., acne, cyst), whereas the patient was unsure of the diagnosis at 75% of visits (i.e., skin examination, discoloration/abnormal pigmentation).

For patients ≤ 18 years, the most common reasons for visits were acne (28%), warts (7.7%), and skin rash (6.4%, Table 2). In this age group, the top ten reasons for visit accounted for 64% of all visits to the dermatologist. Among the ten most common reasons for visits in this age group, the patient felt they already knew the diagnosis at 61% of visits to the dermatologist, whereas at 39% of visits the patient was unsure of the diagnosis (Table 2).

For patients 19–65 years, skin examinations (7.7%) were the most common reason for visits, followed by discoloration/abnormal pigmentation (7.1%) and acne (6.7%, Table 2); 52% of all visits to the dermatologists for patients ages 19–65 included a reason for visit from the top ten. Among the ten most common reasons for visits for patients ages 19–65, 21% of visits included a reason where the patient felt they knew the diagnosis, whereas at 79% of all visits the patient was unsure of the diagnosis (Table 2).

In the ≥ 66-year-old group, skin lesion (10%) followed by skin examination (9.6%) and discoloration/abnormal pigmentation (8.3%) was the most common reasons for visit to the dermatologist (Table 2). Itch (2.8%) was the 8th

Table 1 Ten most common reasons for ambulatory visits to the dermatologist according to the National Ambulatory Medical Care Survey (NAMCS) between 2007 and 2018

Reason for visit	Unweighted frequency of visits	Weighted frequency in millions (95% CI)	Percentage of visits
Skin examination	2177	45 (42–47)	7.8
Skin lesion	2081	43 (41–46)	7.5
Discoloration/abnormal pigmentation	1867	42 (40–45)	7.3
Progress visit	1416	39 (35–42)	6.7
Acne	1665	37 (35–39)	6.4
Skin rash	1325	29 (27–31)	5.0
Cancer, skin, and subcutaneous tissue	1071	23 (21–25)	4.0
Symptoms of skin moles	755	18 (16–19)	3.0
Other diseases of skin	884	17 (15–19)	2.9
Cyst	714	16 (14–17)	2.7

CI confidence interval

most common reason patients ages ≥ 66 years visited the dermatologist and the 11th most common reason (1.2%) overall. For the ≥ 66 -year-old group, the top ten reasons for visits accounted for 59% of all dermatology visits. Among the ten most common reasons for visit, 17% of all visits included a reason where the patient felt they already knew the diagnosis, whereas at 83% of visits the patient was unsure of the diagnosis (Table 2).

DISCUSSION

By identifying the most common reasons for visit to the dermatologist, we can improve our understanding of a patient's needs and appropriate health outreach resources to improve patients' access to care. The ten most common reasons for visits account for over half of all visits to the dermatologist. Most patients visit the dermatologist for a reason in which they feel they do not know the diagnosis such as skin examination or skin lesion. However, among pediatric patients, a greater proportion visits the dermatologist for a reason for which they believe they already know the diagnosis, such as

acne or warts. For the ten most common conditions, pediatric patients felt they knew the diagnosis before visiting the dermatologist at $> 60\%$ of visits.

Health outreach programs aimed at improving dermatologic access to underserved communities can be further targeted to address common reasons patients visit the dermatologist. For example, the American Academy of Dermatology's (AAD) Good Skin Knowledge program, aimed at educating underserved children on skin conditions common to their age group, should highlight topics such as acne, warts, and skin rashes and when to seek dermatologic care for these conditions. Health outreach programs such as Good Skin Knowledge could additionally aim to teach patients how to self-treat for common conditions such as acne (over-the-counter acne treatments) or warts (over-the-counter wart remover kits). Likewise, the AAD's free online educational materials for patients can be expanded beyond skin cancer screening to include other reasons patient's frequently seek dermatologic care [9].

Itch was a common reason patients sought dermatologic care, especially those ages ≥ 66 years. Not only is itch common, but it has a

Table 2 Ten most common reasons for ambulatory visits to the dermatologist by age according to the National Ambulatory Medical Care Survey (NAMCS) between 2007 and 2018

Reason for visit	Unweighted frequency of visits	Weighted frequency in millions (95% CI)	Percentage of visits
0–18 years			
Acne	684	15 (13–16)	28
Warts	198	4.0 (3.2–4.7)	7.7
Skin rash	154	3.3 (2.7–3.9)	6.4
Discoloration/abnormal pigmentation	109	2.2 (1.6–2.8)	4.3
Symptoms of skin moles	81	1.8 (1.3–2.4)	3.6
Skin lesion	88	1.8 (1.3–2.3)	3.5
Progress visit	90	1.7 (1.3–2.1)	3.3
Eczema and dermatitis	91	1.5 (1.1–1.9)	2.8
Medication, other and unspecified kinds	56	1.3 (0.78–1.8)	2.5
Swelling of skin	41	0.94 (0.58–1.3)	1.8
19–65 years			
Skin examination	1197	25 (23–27)	7.7
Discoloration/abnormal pigmentation	1022	23 (21–25)	7.1
Acne	932	22 (20–23)	6.7
Progress visit	722	21 (18–24)	6.5
Skin lesion	1030	21 (19–23)	6.4
Skin rash	782	16 (15–18)	5.0
Symptoms of skin moles	528	13 (11–14)	4.0
Cyst	455	9.9 (8.8–11)	3.1
Other diseases of skin	496	9.3 (8.2–11)	2.9
Cancer, skin, and subcutaneous tissue	397	8.8 (7.4–10)	2.7
≥ 66 years			
Skin lesion	963	21 (19–23)	10
Skin examination	940	19 (18–21)	9.6
Discoloration/abnormal pigmentation	736	17 (15–19)	8.3
Progress visit	604	16 (14–18)	7.8
Cancer, skin, and subcutaneous tissue	669	14 (12–15)	6.9
Skin rash	389	9.2 (7.9–11)	4.6
Other diseases of skin	363	6.9 (5.8–8.0)	3.4
Itching	211	5.7 (4.5–6.8)	2.8

Table 2 continued

Reason for visit	Unweighted frequency of visits	Weighted frequency in millions (95% CI)	Percentage of visits
Dryness, peeling, scaliness, roughness	233	5.6 (4.5–6.8)	2.8
Cyst	236	5.6 (4.6–6.6)	2.8

CI confidence interval

significant impact on quality of life, mood, and sleep. A new generation of more effective anti-itch therapies has emerged, replacing the less effective antihistamines, which had been a mainstay of treatment for decades. These new therapies have the potential to impact a number of patients seeking dermatologic care. [10].

Limitations

Although the NAMCS is a reliable and frequently used dataset for evaluating outpatient dermatologic care trends, there are limitations. The NAMCS does not describe visits at hospital-based outpatient care facilities. Another limitation of this study is that the physician or non-physician provider indicated the patient's reason for visit as a part of their survey response. This reason for visit as documented by the physician or non-physician provider was then coded by the NCHS according to their "Reason for Visit Classification and Coding Manual" [7]. Patients were not provided with this "Reason for Visit Classification and Coding Manual." While this methodology can prevent patients from attempting to format their chief complaint into a reason for visit category they may not understand, it also introduces the possibility that the physician or the NCHS coder is not accurately representing a patient's reason for visit. There are a multitude of factors which may influence a clinician's judgment of what to indicate as a patient's primary reason for visit.

CONCLUSION

As > 40% of the US population resides in areas with a dermatologist shortage, general practitioners are seeing most patients presenting in the ambulatory setting for a cutaneous complaint [11]. By understanding the common reasons for visit to the dermatologist stratified by age, primary care physicians can better anticipate the reasons why they may see patients with dermatologic complaints. Pediatricians should understand that children often seek dermatologic care for acne, warts, and skin rashes. Internal medicine and family practice physicians should appreciate that their patients often visit for skin examinations and skin lesions. To provide patient-centered care, dermatologic training, community based health education, and public health resources in each of these specialties should be directed at the reasons their unique patient population most commonly visit the dermatologist.

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Data Availability. The NAMCS dataset can be is available for public use and can be downloaded without a cost from: https://www.cdc.gov/nchs/ahcd/datasets_documentation_related.htm.

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