

# UC Davis

## Dermatology Online Journal

### Title

Non-dermatology visits account for a slight majority of dermatologic diagnoses: a representative sample of U.S. outpatient visits

### Permalink

<https://escholarship.org/uc/item/2qw5f63b>

### Journal

Dermatology Online Journal, 28(2)

### Authors

Ranpariya, Varun K  
Peck, Gabrielle M  
Muddasani, Suraj  
et al.

### Publication Date

2022

### DOI

10.5070/D328257406

### Copyright Information

Copyright 2022 by the author(s). This work is made available under the terms of a Creative Commons Attribution-NonCommercial-NoDerivatives License, available at <https://creativecommons.org/licenses/by-nc-nd/4.0/>

Peer reviewed

# Non-dermatology visits account for a slight majority of dermatologic diagnoses: a representative sample of U.S. outpatient visits

Varun K Ranpariya<sup>1</sup> BA, Gabrielle M Peck<sup>2</sup> BA, Suraj Muddasani<sup>2</sup> MD, Alan B Fleischer<sup>3</sup> Jr MD, Steven R Feldman<sup>1,4,6</sup> MD PhD

Affiliations: <sup>1</sup>Center for Dermatology Research, Department of Dermatology, Wake Forest School of Medicine, Winston-Salem, North Carolina, USA, <sup>2</sup>College of Medicine, University of Cincinnati, Cincinnati, Ohio, USA, <sup>3</sup>Department of Dermatology, University of Cincinnati, Cincinnati Ohio, USA, <sup>4</sup>Department of Pathology, Wake Forest School of Medicine, Winston-Salem, North Carolina, USA, <sup>5</sup>Department of Social Sciences & Health Policy, Wake Forest School of Medicine, Winston-Salem, North Carolina, USA, <sup>6</sup>Department of Dermatology, University of Southern Denmark, Odense, Denmark

Corresponding Author: Steven R Feldman MD PhD, Department of Dermatology, Medical Center Boulevard, Wake Forest School of Medicine, Winston-Salem, NC 27157-1071, Tel: 336-716-7740, Fax: 336-716-7732, Email: [sfeldman@wakehealth.edu](mailto:sfeldman@wakehealth.edu)

*Keywords: common diagnoses, dermatology, internal medicine, NAMCS, outpatient, primary care, visits*

To the Editor:

Historically, non-dermatologists have diagnosed a majority of skin diseases in the outpatient setting [1,2]. Primary care physicians (PCPs) are typically the first providers to encounter patients with dermatologic conditions. However, dermatologic training requirements for PCPs are highly variable and are often not required by the Accreditation Council for Graduate Medical Education (ACGME), [3].

Using 2016 National Ambulatory Medical Care Survey (NAMCS) data, an annual representative survey of U.S. physicians in the outpatient setting, we sought to assess whether non-dermatologists still diagnosed a majority of dermatologic conditions [4]. We also aimed to identify the most common

dermatologic diagnoses seen in dermatology and non-dermatology practices. We analyzed all diagnosis codes reported at dermatologists and non-dermatologist visits as well as the top referred skin diagnoses. Diagnoses were coded using the *International Classification of Diseases, Tenth Revision, Clinical Modification* (ICD10). For each visit, a total of five visit diagnoses can be recorded by the clinician. Non-dermatology-related diagnoses and Z codes were excluded. Minor diagnoses and related diagnoses were combined. For example, dermatophytosis (tinea unguium, tinea pedis, tinea corporis, tinea cruris) or contact dermatitis (allergic contact dermatitis, irritant contact dermatitis, unspecified contact dermatitis).

There were an estimated 1.71 billion diagnoses reported by non-dermatologist over 834 million visits; 95.5 million were dermatology-related (5.59%). In contrast, there were an estimated 49.9 million

**Table 1.** Dermatology-related diagnoses seen by dermatologists, non-dermatologists, and referred to dermatologists<sup>a</sup>.

	Total visits <sup>b</sup>	Total diagnoses <sup>b</sup>	Dermatology-related diagnoses	
			Estimated number of diagnoses <sup>b</sup>	Percentage of all diagnoses
Dermatologists	49.9	96.7	92.2	95.3%
Non-dermatologists	834	1710	95.5	5.59%
Referrals		17.9	16.4	91.8%

<sup>a</sup>Estimated based on data from the 2016 National Ambulatory Medical Care Survey

<sup>b</sup>In millions.

visits to dermatologists with 92.2 million dermatology diagnoses (95.3%). There were 188 million dermatology-related diagnoses reported by dermatologists (49.1%) and non-dermatologists (50.9%), (**Table 1**).

The most frequently reported diseases by dermatologists were seborrheic keratosis and actinic keratosis (10.5% and 10.4% of all diagnoses from dermatology visits) followed by acne (7.45%), melanocytic nevi (6.33%), and nonmelanoma skin cancers (NMSC), (5.59%), (**Table 2**). The top 20 dermatology related diagnoses from visits to dermatologists accounted for 74.0% of all diagnoses made by dermatologists.

Non-dermatologists most commonly reported other and unspecified dermatitis (5.15%), cellulitis (4.13%), contact dermatitis (4.12%), rash and other nonspecific skin eruption (3.84%), and disorder of skin and subcutaneous tissue (3.71%). The top 20 conditions accounted for 58.1% of dermatology related diagnoses and 3.24% of all diagnoses by non-dermatologists.

Non-dermatologists referred 12.6 million dermatology-related diagnoses to dermatologists. National Ambulatory Medical Care Survey (11.7%), seborrheic keratosis (10.3%), actinic keratosis (8.89%), neoplasm of uncertain behavior (6.10%), and melanocytic nevi (6.01%) were the most common referrals.

In 2016, non-dermatologists accounted for a slight majority (50.9%) of outpatient diagnoses for dermatology-related diagnoses in the U.S. This is similar to previous NAMCS data from 2001-2010 which reported that non-dermatologists accounted for 52.9% of all visits.[1]

The top 5 diagnoses by non-dermatologists accounted for approximately 21.1% of all dermatologic diagnoses by non-dermatologists. These diagnoses included other and unspecified dermatitis, rash and other nonspecific skin eruption, and disorder of the skin and subcutaneous tissue. These non-specific diagnoses could reflect a lack of familiarity amongst non-dermatologists' diagnosing dermatologic conditions.[5]. Although they reported approximately half of all dermatologic diagnoses,

non-dermatologists see a much smaller proportion of patients with dermatologic conditions compared to dermatologists. The lack of exposure to dermatology in both practice and training may result in inefficient care for patients. A majority of family medicine and internal medicine residents self-report  $\leq 6$  hours of dermatology lectures in medical school and inadequate dermatology training in residency [6].

The top diagnoses identified in this study may be useful in developing dermatology training for non-dermatologists. For instance, the top 5 non-dermatologists diagnoses indicate a need for a curriculum supporting diagnosis and management of dermatitis. This includes differentiating between different types of dermatitis and treating with the appropriate therapy. Although our list of diagnoses should not be the only tool in guiding a curriculum, it may serve as a foundation for developing dermatology education.

Although the NAMCS database provides nationally representative data ideal for our study, there are some limitations to its use. Our data does not account for dermatologic diseases seen by hospital-based physicians. In addition, there is potential for coding errors and misdiagnosis. Unspecified diagnosis codes may be interpreted as uncertainty or represent a condition that does not fit any other code.

Overall, the NAMCS's 2016 data indicates the most common dermatologic diagnoses encountered by dermatologists and non-dermatologists in the outpatient setting differ. Using these differences as well as the most commonly referred diagnoses, medical educators can better tailor dermatology training to reflect the needs of non-dermatologists.

### Potential conflicts of interest

Dr. Steven Feldman has received research, speaking and/or consulting support from Galderma, GSK/Stiefel, Ammirall, Leo Pharma, Boehringer Ingelheim, Mylan, Helsinn, PHD Biosciences, Celgene, Pfizer, Valeant, Abbvie, Samsung, Janssen, Lilly, Menlo, Merck, Novartis, Regeneron, Sanofi, Novan, Quriert, National Biological Corporation,

Caremark, Advance Medical, Sun Pharma, Suncare Research, Informa, UpToDate and National Psoriasis Foundation. He is founder and majority owner of [www.DrScore.com](http://www.DrScore.com) and founder and part owner of Causa Research, a company dedicated to enhancing

patients' adherence to treatment. Dr. Fleischer is a consultant for Boehringer-Ingelheim, Incyte, Qurient and Sanofi. He is an investigator for Galderma and Trevi. The remaining authors have no conflicts to disclose.

## References

1. Wilmer EN, Gustafson CJ, Ahn CS, et al. Most common dermatologic conditions encountered by dermatologists and nondermatologists. *Cutis*. 2014;94:285-92. [PMID: 25566569].
2. Lowell BA, Froelich CW, Federman DG, Kirsner RS. Dermatology in primary care: Prevalence and patient disposition. *J Am Acad Dermatol*. 2001;45:250-5. [PMID: 11464187].
3. ACGME Program Requirements for Graduate Medical Education in Internal Medicine 2020 May 18, 2021. Available from: [https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/140\\_InternalMedicine\\_2020.pdf?ver=2021-05-06-152419-420](https://www.acgme.org/Portals/0/PFAssets/ProgramRequirements/140_InternalMedicine_2020.pdf?ver=2021-05-06-152419-420). Accessed on May 18, 2021.
4. About the Ambulatory Health Care Surveys Centers for Disease Control and Prevention: 2019 [updated September 6, 2019]. Available from: [https://www.cdc.gov/nchs/ahcd/about\\_ahcd.htm](https://www.cdc.gov/nchs/ahcd/about_ahcd.htm). Accessed on May 18, 2021.
5. Hansra NK, O'Sullivan P, Chen CL, Berger TG. Medical school dermatology curriculum: are we adequately preparing primary care physicians? *J Am Acad Dermatol*. 2009;61:23-9.e1. [PMID: 19409656].
6. Giesey R, Narively D, Mostow E, Mullen C. DERM: A Four-Step Dermatology Education Digital Tool Kit for Nondermatologists

**Table 2.** Top 20 dermatology-related diagnoses seen by dermatologists and non-dermatologists and referrals to dermatologists by non-dermatologists in 2016<sup>a</sup>.

Rank	Dermatologists		Non-dermatologists		Referrals	
	Diagnosis	Estimated Diagnoses (%) <sup>b,c</sup>	Diagnosis	Estimated Diagnoses (%) <sup>b,c</sup>	Diagnosis	Estimated Diagnoses (%) <sup>b,c</sup>
1	Seborrheic Keratosis	9.68 (10.5)	Other and unspecified dermatitis	5.08 (5.32)	Non-melanoma skin cancer	1.93 (11.7)
2	Actinic Keratosis	9.57 (10.4)	Cellulitis	3.94 (4.13)	Seborrheic keratosis	1.69 (10.3)
3	Acne	6.87 (7.45)	Contact Dermatitis	3.94 (4.12)	Actinic keratosis	1.46 (8.89)
4	Melanocytic nevi	5.83 (6.33)	Rash and other nonspecific skin eruption	3.67 (3.84)	Neoplasm of uncertain behavior	1.00 (6.10)
5	Non-melanoma skin cancer	5.15 (5.59)	Other disorders of the skin and subcutaneous tissue	3.54 (3.71)	Melanocytic nevi	0.988 (6.01)
6	Neoplasm of uncertain behavior	4.48 (4.86)	Atopic dermatitis	3.47 (3.64)	Other melanin hyperpigmentation	0.712 (4.33)
7	Other and unspecified dermatitis	3.34 (3.62)	Dermatophytosis	3.29 (3.45)	Acne	0.676 (4.11)
8	Other melanin hyperpigmentation	3.10 (3.36)	Blepharitis	3.04 (3.18)	Other benign neoplasm of skin	0.621 (3.78)
9	Hemangioma	2.23 (2.42)	Urticaria	2.82 (2.96)	Other and unspecified dermatitis	0.554 (3.37)
10	Seborrheic dermatitis	2.23 (2.42)	Varicose veins	2.75 (2.88)	Follicular cysts of the skin and subcutaneous tissue	0.414 (2.52)
11	Psoriasis	2.14 (2.32)	Non-melanoma skin cancer	2.67 (2.80)	Other disorders of the skin and subcutaneous tissue	0.393 (2.39)
12	Other benign neoplasm of skin	1.89 (2.05)	Paresthesia of skin	2.35 (2.46)	Hemangioma	0.354 (2.16)
13	Rosacea	1.75 (1.89)	Acne	2.35 (2.46)	Psoriasis	0.307 (1.87)
14	Follicular cysts of the skin and subcutaneous tissue	1.66 (1.80)	Melanocytic nevi	2.29 (2.40)	Seborrheic dermatitis	0.279 (1.70)
15	Viral Warts	1.62 (1.76)	Psoriasis	1.85 (1.93)	Malignant melanoma	0.237 (1.44)
16	Other disorders of the skin and subcutaneous tissue	1.50 (1.63)	Follicular cysts of the skin and subcutaneous tissue	1.75 (1.83)	Alopecia/Hairloss	0.234 (1.42)
17	Other skin changes due to chronic exposure to	1.47 (1.60)	Herpesviral infections	1.73 (1.81)	Rash and other nonspecific skin eruption	0.223 (1.36)

	nonionizing radiation					
18	Other skin changes	1.39 (1.50)	Candidiasis	1.70 (1.78)	Contact dermatitis	0.221 (1.34)
19	Dermatophytosis	1.18 (1.28)	Cutaneous abscesses and carbuncles	1.69 (1.77)	Dermatophytosis	0.212 (1.29)
20	Pruritus	1.11 (1.20)	Viral warts	1.58 (1.65)	Viral Warts	0.187 (1.14)

<sup>a</sup>Data from the 2016 National Ambulatory Medical Care Survey.

<sup>b</sup>In millions.

<sup>c</sup>Percentages based on total diagnoses (dermatologists, N=68.2 million; non-dermatologists, N=55.5 million; referrals N=12.7 million).