

terbinafine, and for brand name medications it ranged from 3.7% for Kerydin to 17.2% for Diflucan (Fig 1).

Overall, pharmacy costs of brand name topical and systemic medications are greater than pharmacy costs of generic alternatives for onychomycosis treatment and have increased substantially over the past 5 years. Conversely, the cost of generic treatments, all of which were being produced by 8 or more manufacturers, have dropped slightly over the past 5 years despite overall increases in drug spending over the same time period. These observed trends mirror the findings of previous analyses demonstrating that decreased manufacturer competition is associated with increased medication prices, and they will likely persist until expiration of the patents for these brand name medications.⁴

One limitation of our study is that NADAC is calculated only for medications covered by Medicaid and with sufficient cost data submitted by retail pharmacies. Thus, approved onychomycosis drugs, including brand name versions of oral terbinafine (Lamisil [Novartis Pharmaceuticals, East Hanover, NJ]), oral itraconazole (Sporonox [Janssen Pharmaceuticals, Titusville, NJ]), and Onmel [Merz Pharmaceuticals, Greensboro, NC]), and topical ciclopirox (Penlac [Aventis Pharmaceuticals, Berwyn, PA]) were not available for analysis. Additionally, our analysis does not account for rebates paid by manufacturers as part of the Medicaid Drug Rebate Program to offset drug expenditures.

Oral therapies are generally more effective than topicals in treating onychomycosis. Topical or oral therapies are indicated for mild-to-moderate disease. Only oral therapies are appropriate for patients with severe onychomycosis, as topical therapies are often ineffective.⁵ Indiscriminant use of topicals for treating onychomycosis can be costly and can contribute significantly to the growing national prescription drug spending burden. Increased investigation into the efficacy and cost of these treatments is needed to deliver cost-effective care for patients with this common nail condition.

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Clinical differences in pediatric and adult *Malassezia* folliculitis: Retrospective analysis of 321 cases over 9 years



To the Editor: *Malassezia* folliculitis, a common disease in adolescents, is easily misdiagnosed as acne, rosacea, or bacterial folliculitis.¹⁻³ In this study, we aimed to investigate the clinical differences between pediatric (childhood plus adolescent) and adult *Malassezia* folliculitis and their treatment responses.

We retrospectively reviewed relevant cases using International Classification of Diseases (ICD) 9th Revision codes 704.8 (follicular disorder) and 117.9 (mycoses) or 111.0 (pityriasis versicolor) and ICD 10th Revision codes L73.9 (follicular disorder) and B48.8 (mycoses) or B36.0 (pityriasis versicolor) seen at our hospital during January 2008-December 2016. Only the patients given diagnoses after direct microscopic examination of specimens or biopsy were included. This study was approved by the institutional review board of MacKay Memorial Hospital (approval no. 16MMHIS156e).

A total of 321 patients with pediatric (<18 years; n = 79) and adult (n = 242) *Malassezia* folliculitis were included. Clinical information, including age, sex, season of diagnosis, symptoms, lesion locations,

Table I. Clinical characteristics

Characteristic	Total patients, n = 321*	Pediatric group, n = 79*	Adult group, n = 242*	P value [†]
Age, years, median (range)	28 (9-69)	14 (9-17)	35 (18-69)	
Male	245 (76.3)	57 (72.2)	188 (77.7)	.316
Positive direct microscopy	253 (78.8)	68 (86.1)	185 (76.4)	.183
Biopsy proof	72 (22.4)	12 (15.2)	60 (24.8)	.076
Season				.514
Spring	45 (14.0)	12 (15.2)	33 (13.6)	
Summer	132 (41.1)	34 (43.0)	98 (40.5)	
Fall	114 (35.5)	29 (36.7)	85 (35.1)	
Winter	30 (9.3)	4 (5.1)	26 (10.7)	
Symptoms				
Itching	117 (36.4)	24 (30.4)	93 (38.4)	.198
Stinging	3 (0.9)	0 (0)	3 (1.2)	.321
Predisposing factor				
Excessive sweating	13 (4.0)	5 (6.3)	8 (3.3)	.237
Seborrheic dermatitis	21 (6.5)	3 (3.8)	18 (7.4)	.257
Poor response to oral antibiotic treatment [‡]	77 (24.0)	17 (21.5)	60 (24.8)	.555
Malignancy	5 (1.6)	1 (1.3)	4 (1.7)	.810
End-stage renal disease	2 (0.6)	0 (0)	2 (0.8)	.418
Distribution				
Face and scalp	45 (14.0)	17 (21.5)	28 (11.6)	.027
Neck	79 (24.6)	18 (22.8)	61 (25.2)	.665
Chest	236 (73.5)	59 (74.7)	177 (73.1)	.788
Abdomen	26 (8.1)	3 (3.8)	23 (9.5)	.107
Back	141 (43.9)	37 (46.8)	104 (43.0)	.549
Upper limbs	72 (22.4)	11 (13.9)	61 (25.2)	.037
Lower limbs	6 (1.9)	0 (0)	6 (2.5)	.158
Antifungal treatment				
Oral ± topical therapy	217 (67.6)	60 (75.9)	157 (64.9)	.068
Improvement	160 (92.5) [§]	41 (87.2) [§]	119 (94.4) [§]	.111
Lack of improvement	13 (7.5) [§]	6 (12.8) [§]	7 (5.6) [§]	.111
No follow-up data	44 (13.7)	13 (16.5)	31 (12.8)	.753
Topical therapy	104 (32.4)	19 (24.1)	85 (35.1)	.068
Improvement	43 (84.3) [§]	9 (100) [§]	34 (81) [§]	.158
Lack of improvement	8 (15.7) [§]	0 (0) [§]	8 (19) [§]	.158
No follow-up data	53 (16.5)	10 (12.7)	43 (17.8)	.873
Duration, days, median (range)	21 (7-182)	24 (7-133)	21 (7-182)	.914
Overall improvement	203 (90.6) [§]	50 (89.3) [§]	153 (91.1) [§]	.692

*Values are n (%) except where noted.

[†]Comparison between the pediatric and adult groups. $P < .05$ was considered statistically significant.

[‡]Included doxycycline, minocycline, and cephalixin.

[§]Among patients with follow-up data available.

predisposing factors, and documentation of improvement after treatment was obtained by review of the medical records; the results are presented in Table I. All of our patients were Asian and lived in a subtropical region.

The most frequent age range at presentation was 10-19 years (Fig 1). The median age was 14 years in the pediatric group and 35 years in the adult group. Male patients predominated in both age groups (72.2% and 77.7%, respectively). Both age groups had a higher diagnostic incidence in the summer and fall than in the spring and winter ($P < .001$). Pediatric and adult patients did not differ significantly

regarding symptoms, excessive sweating, seborrheic dermatitis, history of ineffective oral antibiotic therapy, or underlying medical conditions.

In pediatric patients, lesions were commonly located on the chest (74.7%) and back (46.8%), followed by the neck (22.8%), face and scalp (21.5%), and upper limbs (13.9%). In adult patients, lesions were more frequently distributed on the upper limbs (25.2%, $P = .037$) but less so on the face and scalp (11.6%, $P = .027$). Facial involvement most commonly affected the forehead in pediatric patients and the submandibular area in adults.

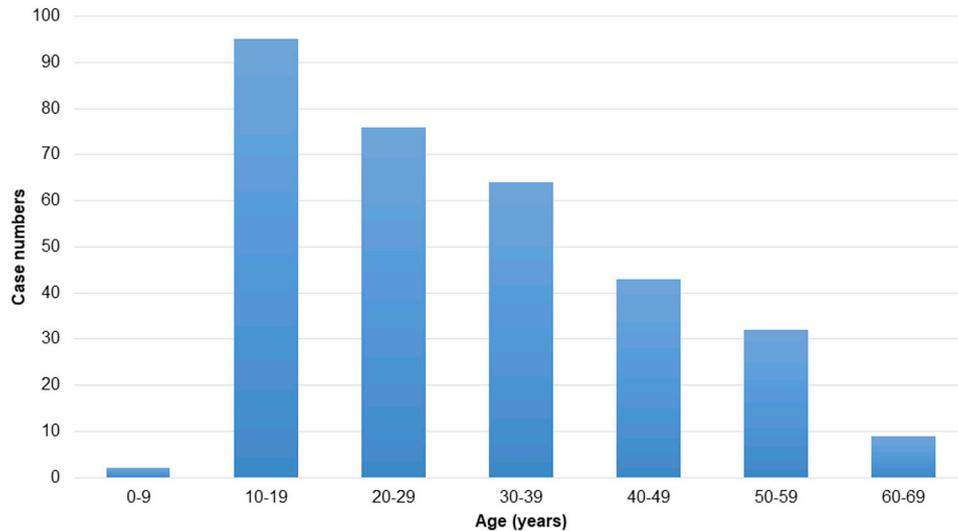


Fig 1. Age distribution of *Malassezia* folliculitis cases.

Most patients in both the pediatric (75.9%) and adult (64.9%) age groups received oral antifungal therapy with either itraconazole or (before 2016) ketoconazole 200 mg daily for a median of 28 days, with an overall improvement rate of 92.5%. Of note, oral ketoconazole therapy for superficial fungal infections is no longer recommended because of the potential for hepatotoxicity and QT prolongation. Other patients were treated topically with sertaconazole or clotrimazole cream twice daily for a median of 14 days, with an overall improvement rate of 84.3%. The retrospective nature and lack of follow-up data in 30% of patients were limitations of this study.

Although *Malassezia* folliculitis has a predilection for the trunk, this condition is more likely to affect the face in pediatric patients. The presence of monomorphic small papules and pustules without comedones represent clues to differentiate it from acne vulgaris. We suggest direct microscopic examination of follicular contents to facilitate diagnosis of *Malassezia* folliculitis, especially in male teenagers and patients who fail to respond to antibiotic therapy.

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Use of complementary and alternative medicine by patients with psoriasis



To the Editor: Research on the efficacy of complementary and alternative medicines (CAMs) for psoriasis is increasing,¹ but patients may misunderstand the benefits of these therapies. Previous studies have examined the rate of CAM utilization, reporting use as high as 62%.^{2,3} However, these studies failed to delve into patients' reasons for using CAMs, and the populations sampled limit the widespread applicability of the results.²⁻⁴ This institutional review board–approved survey was disseminated by the National Psoriasis Foundation to determine the types of CAMs used and patients' motivations for using CAM. Statistical analyses were performed using chi-square tests.

The survey was promoted in the National Psoriasis Foundation's October 2018 newsletter