

Updates in emerging infectious diseases in dermatology

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Conflict of Interest

Research support from Priovant Therapeutics, Inc.

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No conflict of interest related to the contents of this talk

Some* emerging infectious diseases in dermatology**

Fungal: dermatophytes¹, implantation mycoses^{2,3}, candida auris⁴

Viral: mpox⁵, chikungunya^{6,7}, dengue⁸, measles⁹

Parasitic: chagas¹⁰, scabies¹¹, leishmaniasis¹²

Bacterial: klebsiella folliculitis¹³, leprosy¹⁴

* Risk/Incidence of particular infections are influenced by geography, travel, and/or migration patterns

** Consult local public health and ID officials as needed

¹Caplan AS, et al. MMWR Morb Mortal Wkly Rep. 2023 May 12;72(19):536-537. doi: 10.15585/mmwr.mm7219a4; ²Gold JAW, et al. J Am Acad Dermatol. 2023 Aug;89(2):427-430; ³de Andrade Galliano Daros Bastos F, et al. Med Mycol. 2025 Jun 5;63(6):myaf051; ⁴Chang YY, et al. J Microbiol Immunol Infect. 2025 Jul 30:S1684-1182(25)00147-1; ⁵Prasad S, et al. J Am Acad Dermatol. 2023 May;88(5):1066-1073; Liu Q, et al. Infect Dis Poverty. 2025 Sep 11;14(1):93; ⁷CDC, <https://www.cdc.gov/dengue/outbreaks/2024/index.html>; ⁹Ahmadi F, et al. JAMA. 2025 Sep 15:e2517812; ¹⁰Beatty NL, et al. Emerging Infectious Diseases. 2025;31(9):1691-1697; ¹¹Gupta S, et al. Trop Med Int Health. 2025 Sep 13; ¹²Nepal B, et al. mSphere. 2024 Mar 26;9(3):e0081423; ¹³Yin, N, et al. Euro Surveill. 2025 May;30(20):2500304; ¹⁴Bhukhan A, et al. Emerging Infectious Diseases. 2023;29(8):1698-1700.

Today's objectives: focus on a small subset

Dermatophytes; Describe and treat *T. indotineae* (*plus an overview of TMVII and a note on terbinafine resistant T. rubrum*)

Implantation mycoses; Discuss updates in epidemiology of implantation mycosis in the US (*plus what's new in sporotrichosis*)

Miscellaneous; Reminders in measles

Case 1. Widespread, refractory tinea corporis and cruris

Acquired in Bangladesh

X3 ED in USA; antihistamines, topical steroids, antifungal creams

Many family members affected

Fails 4 weeks terbinafine 250 mg/d

Culture reveals *T. mentagrophytes*



Case 2. Widespread tinea corporis and cruris

Pregnant, no medical history

Prolonged history of rash, very itchy

No travel/contacts with similar rash

Fails 2 weeks terbinafine, 250 mg/d

200 mg/d itraconazole x 4 weeks
clears

Culture: *T. mentagrophytes*



First confirmed cases of *T. indotineae* in USA, 2023

CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People™

Morbidity and Mortality Weekly Report (MMWR)

First Reported U.S. Cases of Tinea Caused by *Trichophyton indotineae* — New York City, December 2021–March 2023

Avrom S. Caplan, MD¹; Sudha Chaturvedi, PhD²;
YanChun Zhu, MS²; Gabrielle C. Todd, PhD²; Lu Yin, MD¹;
Adriana Lopez, MD¹; Lisa Travis, MD¹; Dallas J. Smith, PharmD^{3,4};
Tom Chiller, MD³; Shawn R. Lockhart, PhD³; Karen A. Alroy, DVM⁵;
William G. Greendyke, MD⁵; Jeremy A. W. Gold, MD³

Caplan AS, et al. MMWR Morb Mortal Wkly Rep. 2023 May 12;72(19):536-537. doi: 10.15585/mmwr.mm7219a4.

FIGURE. Lesions occurring on two patients with first reported U.S. cases of tinea caused by *Trichophyton indotineae*, on patient A's neck, abdomen, and buttocks (A–C)* and on patient B's thighs† (D) — New York City, December 2021–March 2023



Photos/Lu Yin (A–C) and Vignesh Ramachandran (D). Used with patients' permission.

Terbinafine resistance in dermatophytes, USA, 2023

Review of lab data of dermatophytes
from across North America¹

Retrospective search for *T. indotineae*

271 isolates, 18.6% terbinafine
resistant (MIC ≥ 0.5 $\mu\text{g/mL}$); 21 *T.*
rubrum, 21 *T. indotineae*

Earliest *T. indotineae* isolate from
2017



Terbinafine resistance in North America¹
*T. Indotineae*²



¹Cañete-Gibas et al. J Clin Microbiol. 2023 Aug 23;61(8):e0056223; ²Caplan AS, et al. MMWR Morb Mortal Wkly Rep. 2023 May 12;72(19):536-537

Terbinafine resistance in dermatophytes, through 2024

70 cases from the same reference laboratory since 2023 publication^{1,2}

> 100 confirmed cases in NYS^{3,4}

Multiple cases treated by a dermatology group in Queens⁵

10 cases from a reference laboratory from Ohio in the 6 months prior⁶



Terbinafine resistance in North America¹
T. indotineae



¹Cañete-Gibas et al. *J Clin Microbiol.* 2023 Aug 23;61(8):e0056223; Personal communications, unpublished data. Please do not reproduce. ²Nathan Weiderhold, PharmD, UT Health San Antonio; ³Sudha Chaturvedi, PhD, Wadsworth Center, New York State; ⁴Caplan AS, et al. *MMWR Morb Mortal Wkly Rep.* 2023 May 12;72(19):536-537; ⁵Michael Berry, MD, New York City; ⁶Mahmoud Ghanoum, PhD, Case Western Reserve

Global spread of *T. indotineae*



Verma SB, et al. *Indian J Dermatol Venereol Leprol.* 2025;91:277-80; de Almeida JN Jr, et al; *Emerg Infect Dis.* 2025 May;31(5):1049-1051. Mbatha S. South Africa. *Public Health Bulletin South Africa.* Published December 20, 2023;

Remarkable antifungal failure marks *T. indotineae*

Failed: courses of fluconazole (150-300 mg/week), terbinafine (500 mg/day), griseofulvin (500 mg/day), itraconazole 100 mg BID x 8 weeks, ketoconazole 200 mg/d x 6 wks, fluconazole 100 mg/d x 11 weeks¹

Clear: 2 weeks voriconazole 200 mg/d¹



Fig. 3. Tinea corporis/cruris involving the lower abdomen, pubic region, groin (a) and face (b) at presentation. Note the subtle presentation with lack of erythema, a common chronic presentation seen in the Indian subcontinent in the current times (c) and (d). Resolution post 2 weeks of voriconazole.

¹Khurana A, et al. J Mycol Med. 2022 Nov;32(4):101306. doi: 10.1016/j.mycmed.2022.101306; ²Khurana A, et al Mycoses. 2021 Dec;64(12):1480-1488.

T. indotineae, typical and atypical clinical presentations



Figure 1a: Annular plaques of tinea corporis with minimal inflammation



Figure 1b: Multiple annular erythematous plaques of tinea with peripheral pustular borders suggestive of severe inflammation

May be widespread, refractory and in healthy patients



Xu Z, Caplan AS. N Engl J Med. 2024 Nov 14;391(19):1837.

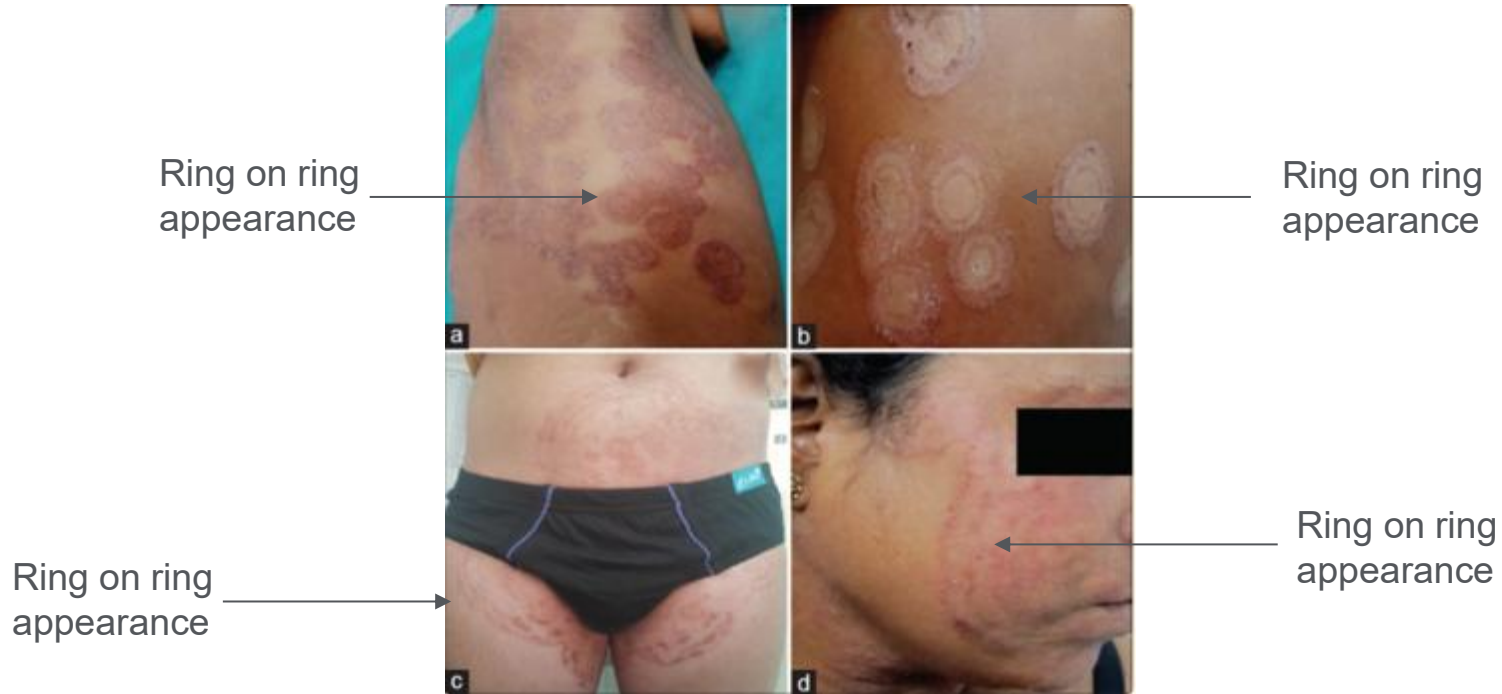
Buttocks a common site, +/- crust, hyperpigmentation



“Bizarre shapes” that may mimic eczema or psoriasis



May see “pseudoimbricata”, steroid-modified tinea



Tinea faciei, masked by topical steroid use

No tinea elsewhere

Had lived in Dubai, used topical Clobetasol (steroid), neomycin (antibiotic), ketoconazole (antifungal) from India, via internet shopping

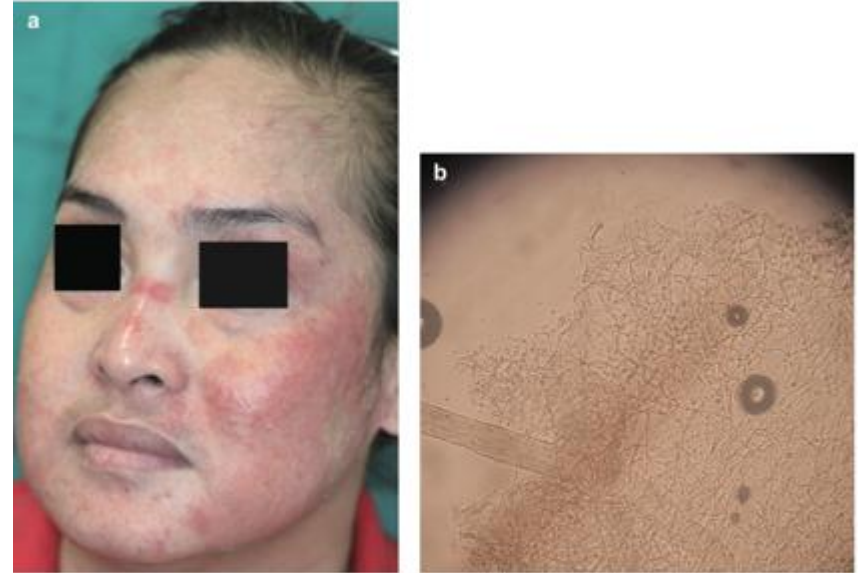


Fig. 1. Clinical picture of tinea faciei.

a: Annular erythema of the face.

b: KOH direct examination shows fungal hyphae with hair.

Increasing male genital dermatophytosis in India



¹Verma SB, et al. *Indian J Dermatol Venereol Leprol.* 2021 Mar-Apr;87(2):154-175. doi: 10.25259/IJDVL_301_20; ²Verma SB, Vasani R., *Mycoses.* 2016 Oct;59(10):606-14. doi: 10.1111/myc.12503. Epub 2016 Mar 30; ³Nenoff P, et al. *Akt Dermatol.* 2017;43:146–53.

Potential sexual transmission of *T. indotineae*

EMERGING INFECTIOUS DISEASES®

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Volume 30, Number 4—April 2024

Research Letter

Potential Sexual Transmission of Antifungal-Resistant *Trichophyton indotineae*

Stephanie Spivack, Jeremy A.W. Gold, Shawn R. Lockhart, Priyanka Anand, Laura A.S. Quilter, Dallas J. Smith, Briana Bowen, Jane M. Gould, Ahmed Eltokhy, Ahmed Gamal, Mauricio Retuerto, Thomas S. McCormick, and Mahmoud A. Ghannoum✉

Author affiliations: Temple University Hospital Section of Infectious Diseases, Philadelphia, Pennsylvania, USA (S. Spivack); Centers for Disease Control and Prevention, Atlanta, Georgia, USA (J.A.W. Gold, S.R. Lockhart, P. Anand, L.A.S. Quilter, D.J. Smith); Department of Public Health, Philadelphia (B. Bowen, J.M. Gould); Center for Medical Mycology, Case Western Reserve University and University Hospitals Cleveland Medical Center, Cleveland, Ohio, USA (A. Eltokhy, A. Gamal, M. Retuerto, T.S. McCormick, M.A. Ghannoum)

Approach to treatment: itraconazole for *T. indotineae*

200 mg daily dose itraconazole, 6-8 weeks or longer, monitor for relapse^{1,2}, drug interactions, black box warning³

Some experts initiate therapy for 12 weeks for all patients, hoping to minimize relapse; and suggest 100 mg/day itraconazole inadequate to achieve cure⁴

Therapeutic delays (>6 mos), atopy, topical steroid use, tinea cruris -> poor outcomes⁵

¹Khurana A, et al. JAMA Dermatol. 2022 Sep 14;158(11):1269–78; ²Shaw Det al. Antimicrob Agents Chemother. 2020 Mar 24;64(4):e01964-19; ³Caplan AS, et al. MMWR Morb Mortal Wkly Rep. 2023 May 12;72(19):536-537; ⁴Gupta A, et al. Expert Rev Anti Infect Ther. 2024 Aug 8; ⁵Shaw D, et al. Mycoses. 2024 Aug;67(8):e13778.

Antifungal susceptibility data may inform treatment

Term	Definition ¹
Minimal inhibitory concentration (MIC)	• Lowest concentration of an antimicrobial that prevents predetermined amount of growth <i>in vitro</i>¹
Clinical Breakpoint	• Predictive MIC value, determines if microorganism may respond <i>in vivo</i> to an achievable concentration of antimicrobial at site of infection, administered at predefined dosing schedule¹ • MIC, clinical outcomes, pharmacokinetic/dynamic data^{1,2}
Epidemiologic cutoff (ecologic) value (ECOFF)	• Used to determine if isolate is wild type (WT) in regard to its <i>in vitro</i> response to a given antifungal agent¹

¹Lockhart SR, et al. *J Clin Microbiol.* 2017 May;55(5):1262-1268; ²Shaw D, et al. *Antimicrob Agents Chemother.* 2020 Mar 24;64(4):e01964-19.

Antifungal susceptibility data may inform treatment

Minimal inhibitory concentration (MIC) data alone doesn't establish if a dermatophyte is resistant (MIC value does not predict clinical success)¹

Elevated Terbinafine (TRB) MIC values have been correlated to *in vitro* resistance and treatment (clinical) failure aka “resistance”

TRB MIC ($> 0.5^1$ or $> 1.0 \mu\text{g/mL}^2$) a/w *in vitro* resistance, treatment failure^{2,3,4}

¹Lockhart SR, et al. *J Clin Microbiol*. 2017 May;55(5):1262-1268; ²Ebert A, et al. *Mycoses*. 2020 Jul;63(7):717-728; ³Shaw D, et al. *Antimicrob Agents Chemother*. 2020 Mar 24;64(4):e01964-19; ⁴Caplan AS, Todd GC, et al. *JAMA Dermatol*. 2024 Jul 1;160(7):701-709. doi: 10.1001/jamadermatol.2024.1126.

Case 2. Widespread tinea corporis and cruris

Pregnant, no medical history

Prolonged history of rash, very itchy

No travel/contacts with similar rash

Fails 2 weeks terbinafine, 250 mg/d

200 mg/d itraconazole x 4 weeks
clears

Culture: *T. mentagrophytes*



Confirmed *T. indotineae*

T. indotineae confirmed

Cleared on 4 weeks itraconazole

Table 2. Antifungal susceptibility testing (AFST) results for Bellevue *T. indotineae* isolates

	Antifungal MIC values ¹				SQLE mutation
	FLC	ITC	GRF	TRB	
1	16	0.06	4	1	L393S

TRB MIC value ≥ 0.5 μ /mL correlated to clinical treatment failure; SQLE mutations L393S



Recent recommendations highlight that terbinafine 250 mg twice in treating *T. indotineae* infection may overcome minimally elevated MIC values^{3,4}

¹Wadsworth Center, New York State Department of Health, Courtesy S. Chaturvedi, PhD; ²Ebert A, et al. *Mycoses*. 2020 Jul;63(7):717-728; ³Khurana A, et al. *Antimicrob Agents Chemother*. 2018;62(12):e01038-18; ⁴Verma KK, et al. *Indian Dermatol Online J*. 2021;12(6):820-825.

Case 3. Refractory tinea of the buttocks

60s Y M with repeated episodes of tinea corporis, cruris, pedis to 2017

Failed 4 months of oral terbinafine

T. indotineae confirmed

Drug interaction limits use of itraconazole; clears on 20 weeks griseofulvin



***T. indotineae*, relapse after itraconazole**

Misses appointment, relapses;
medications adjusted with cardiology

Completes 14 weeks of itraconazole,
100 mg daily, cleared

Relapse within weeks; restarts
itraconazole 100 mg daily x 8 weeks



T. indotineae, relapse after itraconazole

Itraconazole for tinea, 55 patients
(47.4%) **relapsed** after treatment

No difference in relapse rate among
groups (100 mg, 200 mg or 400 mg)

400 mg group had shorter treatment
duration (vs 100, 7.7 [4.7] vs 5.2 [2.6]
weeks); (vs 200; 7.2 [3.8] vs 5.2 [2.6]
weeks)

Original Investigation

FREE

Effect of Different Itraconazole Dosing Regimens on Cure Rates, Treatment Duration, Safety, and Relapse Rates in Adult Patients With Tinea Corporis/Cruris A Randomized Clinical Trial

Ananta Khurana, MD¹; Aastha Agarwal, MD¹; Diksha Agrawal, MD¹ ;
Sanjeet Panesar, MD²; Manik Ghadlinge, MD³; Kabir Sardana, MD¹; Khushboo Sethia, MD¹;
Shalini Malhotra, MD⁴; Ankit Chauhan, PhD⁴; Nirmala Mehta, MD⁴

Failure of itraconazole reported, not widely

A-D Failed terbinafine, itraconazole, fluconazole; D failed voriconazole

A-C) Voriconazole 200 mg/day x 6 weeks, then 200 mg three times weekly x 4 weeks

D) Posaconazole 300 mg/day x 4 weeks, then 300 mg twice weekly x 4 weeks



Case 4. Terbinafine failure

50s year male with many year history of recurrent tinea corporis

No other relevant medical history

Biopsy 4 months prior: dermatophyte involving the hair follicle

No response to 4 weeks of terbinafine 250 mg/day

Culture confirms *T. rubrum*



Terbinafine failure in *T. rubrum*

Terbinafine MIC value 32 ug/mL (not interpretable)

Clears on itraconazole x 7-8 weeks, 3 weeks dosed at 200 mg twice daily

Presents for follow-up 1 month after finishing itraconazole



T. rubrum, old map, lack of confirmatory testing?

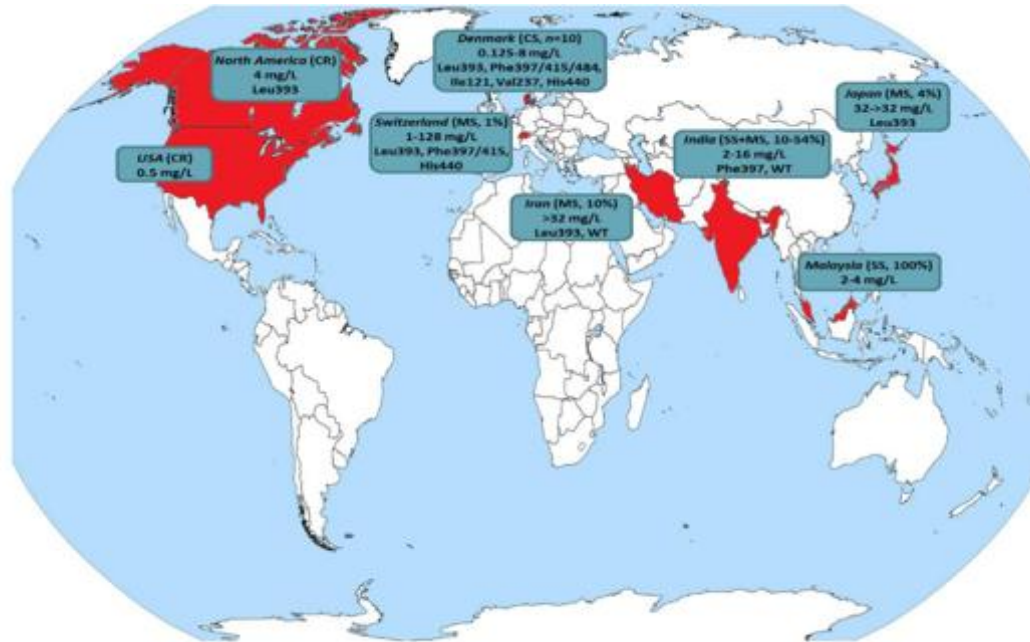


Figure 3. Global distribution of *T. rubrum* isolates exhibiting reduced susceptibility to terbinafine (detailed in Table 3)

Case 5. Delayed diagnosis, tinea genitalis and glutealis

Recent travel in USA and Europe

Reports multiple male sex partners

Initially treated as eczema

Culture identified *T. interdigitale*



TMVII arrives in NYC, 2024

TMVII by genetic sequencing

Terbinafine 250 mg qd x 6 weeks;
partial improvement

Resolved after additional 7-8 weeks
of itraconazole 200 mg daily

Observation

June 5, 2024

Potential Sexual Transmission of Tinea Pubogenitalis From TMVII

Avrom S. Caplan, MD¹, Michelle Sikora, BS^{1,2}, Arianna Strome, MD³, Christine C. Akoh, MD, PhD¹, Caitlin Otto, PhD³,
Sudha Chaturvedi, PhD^{4,5}, John G. Zampella, MD¹

> Author Affiliations

JAMA Dermatol. 2024;160(7):783-785. doi:10.1001/jamadermatol.2024.1430



TMVII dermatophytosis among MSM

Previously linked to sex tourism (South Asia)

Recent literature highlights spread among men who have sex with men¹⁻³

Genitals, buttocks, face, body, may see localized, atypical or typical lesions⁴

Inflammatory nodules, scarring, bacterial superinfection reported^{1,4}

Terbinafine 250 mg/d typically effective, sensitive dermatophyte, may require longer than typical course; topicals alone rarely effective^{1,4}

¹Jabet A, et al. *Emerging Infectious Diseases*. 2023;29(7):1411-1414; ²Chromy D, et al. *Open Forum Infect Dis*. 2023 Nov 17;10(11):ofad519; ³Caplan AS et al. *JAMA Dermatol*. 2024 Jul 1;160(7):783-785; ⁴Kämmerer K, et al. *J Dtsch Dermatol Ges*. 2025 Jul 31. doi: 10.1111/ddg.15837

TMVII among men who have sex with men in France

Volume 29, Number 7—July 2023

Dispatch

Sexually Transmitted *Trichophyton mentagrophytes* Genotype VII Infection among Men Who Have Sex with Men

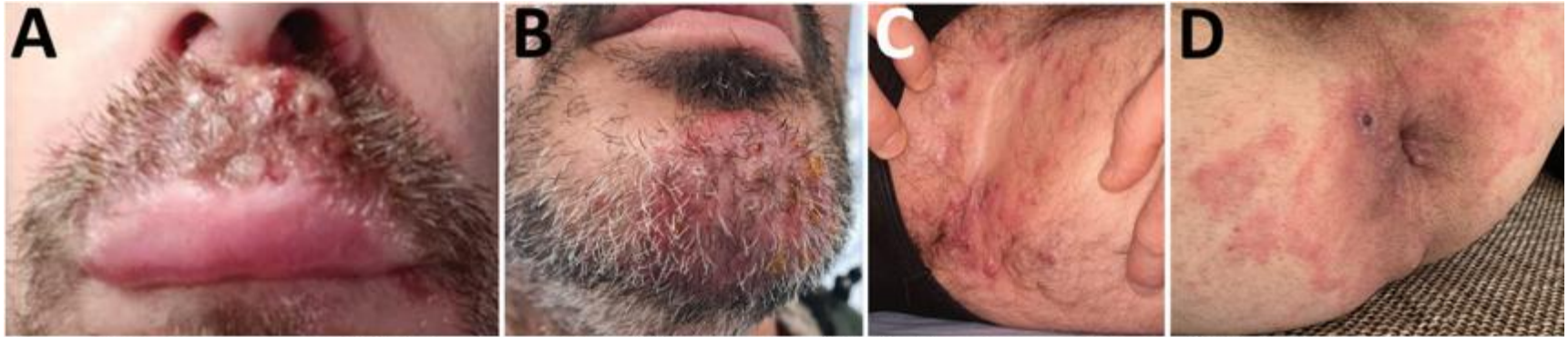


Figure. Clinical appearance of *Trichophyton mentagrophytes* genotype VII infections in men in France, 2022. A, B) Swollen lesions of the mustache (A) and beard (kerions) (B). C) Papular and nodular inguinal lesions. D) Peri-anal mpox lesions with associated papules and pustules with central umbilication and a large lesion with a central necrotic crust, surrounded by extensive erythematous-squamous circinate lesions caused by TMVII infection.

May be atypical clinically

A) Typical and atypical subcutaneous papules and pustules

B–D) Subcutaneous papules and pustules, partly follicular

E–H) Confluent subcutaneous pustules and papules forming nodules and plaques

i) Localized alopecia on the forearm



TMVII, delays in diagnosis, long-term treatment

Male sex worker with widespread, pruritic eruption

First appeared on penis, spread to multiply body sites, very itchy

Treated as eczema and psoriasis

Confirmed TMVII and cleared with itraconazole, after



TMVII, incubation period may lead to more cases

17 cases corresponded to 16 patients affected by a single masseur

3 clients infected who received massages 3 weeks prior to masseur developing lesions

4/11 samples available for follow-up; positive 3-4 weeks after treatment

Topicals alone failed when used



Review of dermatophytes and *T. indotineae*



CLINICAL REVIEW • Volume 93, Issue 2, P315-323, August 2024

Clinico-mycological and therapeutic updates on cutaneous dermatophytic infections in the era of *Trichophyton indotineae*

[Ananta Khurana, MD](#) ^a • [Savitha Sharath, MD](#) ^a • [Kabir Sardana, MD](#) ^a • [Anuradha Chowdhary, MD](#) ^b

American Journal of Clinical Dermatology
<https://doi.org/10.1007/s40257-024-00848-1>

REVIEW ARTICLE

Expert Panel Review of Skin and Hair Dermatophytoses in an Era of Antifungal Resistance

Rachel C. Hill¹ • Avrom S. Caplan² • Boni Elewski³ • Jeremy A. W. Gold⁴ • Shawn R. Lockhart⁴ • Dallas J. Smith⁴ • Shari R. Lipner²

Accepted: 23 January 2024

Chromoblastomycosis, neglected tropical disease



Chromoblastomycosis

James, William, D. et al. *Andrews' Diseases of the Skin*. Available from: Elsevier eBooks+, (13th Edition). Elsevier - OHCE, 2019.



Chromoblastomycosis

Curtis KL, Gold JAW, Ritter JM, Rosen T, Santos et al. *J Am Acad Dermatol*. 2025 Jun;92(6):1189-1206.

Sporotrichosis, neglected tropical disease



Sporotrichosis

Renati A, Mahar T, Burgin S. Sporotrichosis. In: Goldsmith LA, ed. VisualDx. Rochester, NY: VisualDx; 2025. URL: <https://www.visualdx.com/visualdx/diagnosis/?moduleId=101&diagnosisId=52339#top>. Accessed September 17, 2025

Implantation mycoses, in US patients, 2017-2021

5-year Prevalence (per 1,000,000)	
Chromoblastomycosis (including phaeophyomycotic abscesses)	14.7
Sporotrichosis	12.4
Mucormycosis	10.4
Eumycetoma	5.2
Rhinosporidiosis, talaromycosis, lobomycosis	<2.0

Using Marketscan database, ICD10 codes (*these group chromo and phaeohyphomycosis)

Implantation mycoses, multicenter review, led by CDC

Criteria:

Standardized case report forms

Diseases: eumycetoma and chromoblastomycosis

Causative organisms: all

Exclusion:

Phaeohyphomycosis

Actinomycetoma

Centers

- Cornell University
- Duke University
- Mayo Clinic
- UAB
- UMMC
- UC, Davis
- NYU
- Vanderbilt University
- University of Wisconsin
- University of Colorado

Chromoblastomycosis

Objectives:

1. To describe the demographic and travel history of patients
2. To identify causative organisms
3. To describe diagnostic delays
4. To describe clinical manifestations
5. To describe treatment outcomes
6. To describe disabilities

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Chromoblastomycosis

Objectives:

1. To describe the demographic and travel history of patients
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Demographics

Male (76%)

Non-Hispanic (86%)

White (67%)

Average age: 63

Retired (29%)

Around half had no international travel history

Chromoblastomycosis

Objectives:

1. To describe the demographic and travel history of patients
2. To identify causative organisms
3. To describe diagnostic delays
4. **To describe clinical manifestations**
5. To describe treatment outcomes
6. To describe disabilities

Clinical manifestations:

Ten recalled traumatic inoculation
Five misdiagnosed with SCC
Most infections were on the upper limbs (67%)
Nodules (49%), Raised and crusted lesions (22%), Pain (22%)

Chromoblastomycosis

Objectives:

1. To describe the demographic and travel history of patients
2. To identify causative organisms
3. To describe diagnostic delays
4. To describe clinical manifestations
- 5. To describe treatment outcomes**
6. To describe disabilities

Treatment:

Required long durations of antifungals
18/50 Itraconazole, 197 days (39-700)
7/50 Posaconazole, 109 days (31-215)
6/50 Voriconazole, 100 days (42-167)
6/50 Terbinafine, 445 days (91-988)
Most had complete resolution

Implantation mycosis in the US, what next?

Limitations:

- Difficulty distinguishing chromoblastomycosis and cutaneous phaeohyphomycosis due to limited histopathology data

- Causative organism identification gap

Next steps:

- Continued surveillance to increase disease recognition

- Clinical data to inform guideline development

If interested in submitting data: **Dallas Smith at rhq8@cdc.gov**

Cat-associated sporotrichosis

Sporothrix brasiliensis, public health threat in Brazil¹

Spread by contact with infected cats; inoculation^{1,2}, or rarely droplet³

In 2022; 3 UK cases; cat imported from Brazil 3 years prior⁴

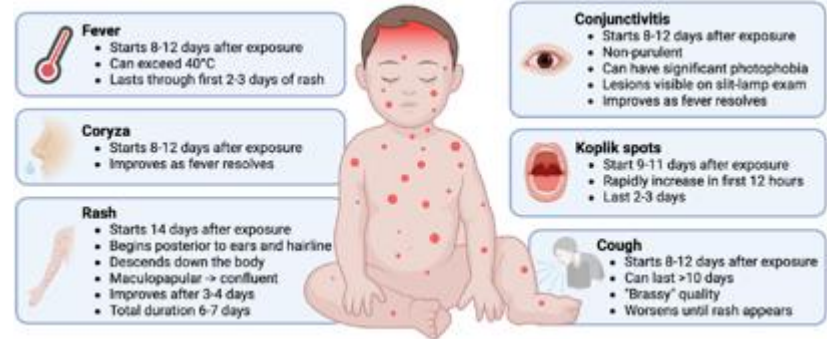
Specialized testing to confirm



de Oliveira Bento A, et al. PLoS Negl Trop Dis. 2021 Aug 30;15(8):e0009693.

¹Bittencourt AA, et al. Braz J Microbiol. 2022 Jun;53(2):739-748; ²de Oliveira Bento A, et al. PLoS Negl Trop Dis. 2021 Aug 30;15(8):e0009693; ³de Andrade Galliano Daros Bastos F, et al. Med Mycol. 2025 Jun 5;63(6):myaf051; ⁴Barnacle JR, et al. Med Mycol Case Rep. 2022 Dec 20;39:14-17

Reminders in Measles



- Exanthem ~ 2 weeks after exposure
- Centrifugal spread, hairline/behind ears; clears in same pattern
- Desquamation with resolution

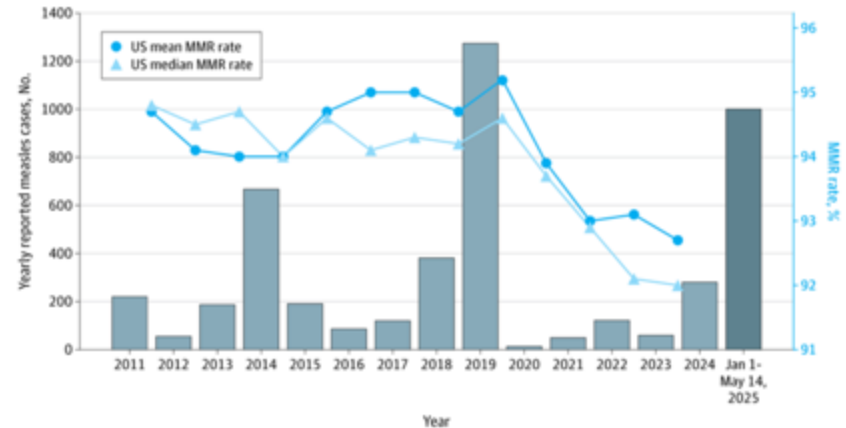
Measles cases and vaccination rates in the US

2000 to 2024, annual measles cases in the US averaged less than 200

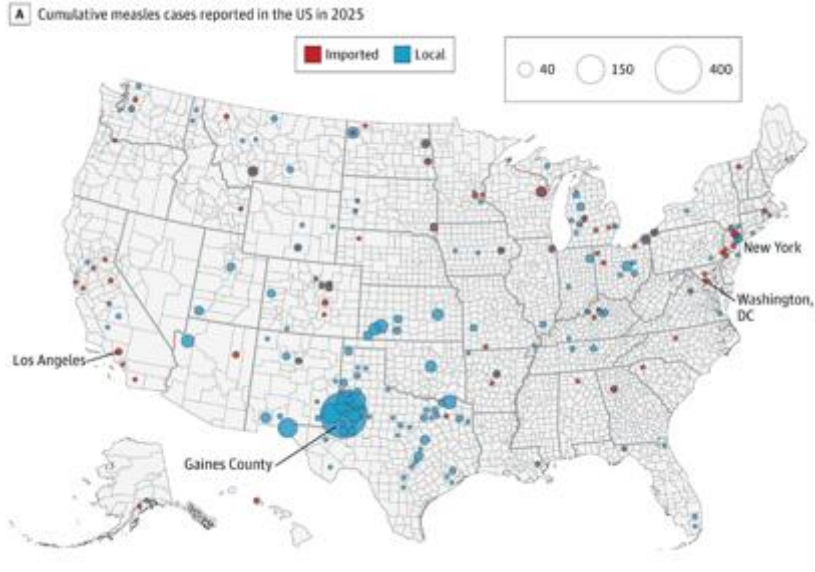
In 2025, more reported measles cases than any year in > 3 decades, (As of 9/30/2025, 1,544 confirmed)

Rise in cases is occurring alongside decrease in vaccinations

Figure 1. Reported Measles Cases and Measles-Mumps-Rubella (MMR) Vaccination Rates in the US



Measles county level cases, 2025



Measles in Virginia: 2025

VDH has [reported](#) four cases of measles in Virginia in 2025. VDH also continues to report public exposure locations in Virginia related to confirmed cases of measles.

Region		Counts*
Age Group		Counts*
0-4 years		2
5-12 years		1
13-17 years		1
18+ years		0
Total		4

Complications, Pulmonary and extrapulmonary

½ of children have pulmonary involvement; viral and bacterial respiratory infections¹; Pneumonitis and giant cell pneumonia rare but potentially fatal²

Extrapulmonary complications bacterial and viral tracheitis, otitis media and diarrhea; less common myocarditis, pericarditis, appendicitis, blindness, TTP^{1,2}

Measles can suppress the immune system of previously healthy patients and lead to longer term risk of secondary infection^{1,2}

Persistent fever 2-3 days after development of rash, think superimposed bacterial infection¹

¹Naureckas Li C, et al. *Pediatrics*. 2025 Jun 1;155(6):e2025071332l ²Do LAH, et al. *N Engl J Med*. 2025 Jun 25. Epub ahead of print

Complications; Neurologic and mortality

Measles encephalitis occurs in up to 1 in 1000 cases (can be fatal in ~ 20% of affected children; 20% to 40% of survivors have long-term neurologic sequelae)

Subacute sclerosing panencephalitis is an almost universally fatal CNS complication; symptoms typically appear years after measles infection

immunocompromised children are at particularly high risk of complications

US measles mortality rate estimated to be 1 to 3 deaths per 1000 infections;
Globally, >100 000 deaths in 2023

Reminders in Measles



Do LAH, Mulholland K. Measles 2025. *N Engl J Med.* 2025 Jun 25. Epub ahead of print.

Takeaway points

If you see recalcitrant, extensive tinea, especially in patients with relevant travel history, **consider *T. indotineae***; confirm with PCR, treat with itraconazole

If you see genital, facial, or buttock tinea in sexually active patients, especially MSM, consider **TMVII**, confirm with PCR, treat with terbinafine

Be aware of locally acquired and travel associated cases of **implantation mycoses** (find and confirm Cat transmitted sporotrichosis?)

Derm diagnoses morbilliform eruptions, remember **measles** where appropriate, confer/collaborate with ID and be ready to discuss vaccines

American Academy of Dermatology; resources/registry

Dermatophyte main page:

<https://www.aad.org/member/clinical-quality/clinical-care/emerging-diseases/dermatophytes>



Emerging Dermatophytes

Dermatophytosis (ringworm, tinea, jock itch, athlete's foot) is a very common and typically minor infection of the skin caused by dermatophyte fungi.¹ In the past decade, severe or antifungal-resistant dermatophytoses have become a global public health concern, including in the United States.

The AAD has assembled resources on *Trichophyton indotineae* and other severe or antimicrobial-resistant dermatophytes. These resources include information sheets on disease recognition, diagnosis, and treatment options, but do not constitute a clinical guideline. The AAD/IDS emerging diseases registry helps to gather information on severe or antimicrobial-resistant dermatophytosis cases.² This content was developed by the Academy's Emerging Diseases Task Force and Avron S. Caplan, MD, FAAD.

 Emerging diseases dermatology registry Report suspected cases of antifungal-resistant dermatophytosis.	 Recognizing <i>Trichophyton indotineae</i> Access Academy guidance on recognizing signs of infection by <i>T. indotineae</i>.	 Preventing and treating <i>Trichophyton indotineae</i> See Academy information on prevention and treatment of <i>T. indotineae</i>.
 <i>Trichophyton mentagrophytes</i> type VII See Academy guidance on TMVII other emerging dermatophytes of concern.	 <i>Trichophyton rubrum</i> resistant to terbinafine See Academy resources related to <i>T. rubrum</i> that is resistant to terbinafine.	

American Academy of Dermatology; website/registry

Dermatophyte registry:

<https://www.aad.org/member/clinical-quality/clinical-care/emerging-diseases/dermatophytes/registry>

EMERGING DISEASES REGISTRY



Thank you for taking part in this important effort on behalf of the American Academy of Dermatology and the International League of Dermatologic Societies. Our hope is that the information you and others provide will help us understand the dermatologic manifestations of drug-resistant dermatophytes. This survey is for all health care professionals taking care of patients with either (a) suspected or (b) confirmed drug-resistant dermatophytosis that you wish to report.

The case report form should take about 5-7 minutes to complete. Patient identifiers such as name or date of birth will not be collected. All de-identified information will be kept strictly confidential and will only be shared with researchers compiling information. Data will be stored on a secure RedCap server at Massachusetts General Hospital. Information and updates will be shared via the Emerging Diseases American Academy of Dermatology website.

The success of this collaborative effort depends on active participation by our international health care community to obtain accurate and reliable information.

This registry is for use by physicians and health care professionals only

Patients should not enter their own cases. If you are a patient who would like your case included, share the link aad.org/emerging with the person providing your care.



Emerging diseases registry

Physicians and other health care providers can click below to enter data into the registry.

[Access the registry](#)

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Thank you
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<https://nyulangone.org/care-services/sarcoidosis-program/care-for-skin-sarcoidosis>

