

# The Persistence of Nystatin Use for Dermatophyte Infections

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## ABSTRACT

**Background:** Despite the limited use of nystatin for tinea infections, physicians may continue to use it.

**Methods:** We assessed the National Ambulatory Medical Care Survey for all to determine the extent of topical nystatin use in tinea infections.

**Results:** Topical nystatin was used at 4.3% (2.1, 6.0) of all tinea visits. It was not used at visits with dermatologists and was most common among Family Medicine physicians ( $P=.02$ ).

**Discussion:** Physicians are continuing to use nystatin for the treatment of tinea infections. Dermatologists have discontinued this treatment regimen, whereas other specialties have an opportunity to further improve their knowledge in this regard.

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## INTRODUCTION

Topical nystatin is limited in its use for the treatment of tinea infections<sup>1</sup> especially because of its relatively poor minimal inhibitory concentration and minimal fungicidal concentration compared to other topical antifungals.<sup>2</sup> As there are more effective alternatives, any continued use of this medication is an area for quality improvement.<sup>3</sup> In this study, we analyzed the National Ambulatory Medical Care Survey (NAMCS) from 2007 to 2016 to determine the extent of topical nystatin use in tinea infections.

## MATERIALS AND METHODS

We analyzed the NAMCS, an annual survey of physicians in the ambulatory setting. Physicians in the survey document visits in a random week of the year. For each visit, they record the physicians' diagnosis, patient demographics, and medications used. To adjust for probabilities of selection and nonresponses, each visit is given an inflation factor called the patient visit weight. This variable allows for the estimation of nationally representative values from observed visits.<sup>4,5</sup>

We analyzed the NAMCS from 2007 to 2016, the most recent years currently available. We assessed the NAMCS for all visits where international classification of disease ninth edition (ICD-9) and ICD-10 codes 110.0, 110.1, 110.3, 110.4 and 110.5 and ICD-10 codes B35.0, B35.1, B35.4, B35.4 and B35.6 were a primary through quinary diagnosis. The analysis was performed with the survey procedures of SAS University Edition (SAS Institute Inc., Cary, NC, USA).

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## RESULTS

There were 1,014 observed visits for tinea which represents 29.6 (95% confidence interval 27.5, 31.7) million infections. There were 12.3 (10.8, 13.9) million female patients which was 41.5% (36.3, 46.7) of the total. The mean age was 41.7 (40.2, 43.3).

Topical nystatin was used at 526 (224, 827) thousand visits which was 4.3% (2.1, 6.0) of all tinea visits. Nystatin was 5.2% (2.2, 8.1) of topical antifungals and 4.6% (2.0, 7.3) of all antifungals used for tinea. There was no change in use over time ( $P=.8$ , [odds ratio 1.0 (.85, 1.3)]).

There were no observations of nystatin use for tinea at visits with dermatologists. Nystatin was used most commonly by Family Medicine physicians ( $P=.002$ ) at 18.3% (7.0, 29.6) of visits. Despite this, nystatin was only used at 1.0% (0.4, 1.6) of all visits for tinea with Family Medicine physicians.

## DISCUSSION

Physicians are continuing to use nystatin for the treatment of tinea infections at a small fraction of visits.<sup>1</sup> The small sample size of visits is a limitation of this study and prevents further analysis. Regardless, as the 95% confidence intervals for medications do not intersect zero, we are confident that there is still an appreciable use of nystatin.

As nystatin has proved ineffective for tinea for several decades,<sup>6</sup> the continued prescription of this medication for dermatophytosis likely represents an educational gap. Some specialties, such as

dermatology likely have already incorporated this knowledge into practice, whereas others such as family medicine may have an opportunity to further improve their knowledge regarding the most efficacious treatments of dermatophytosis.

### DISCLOSURES

Dr Fleischer is a consultant for Boehringer-Ingelheim, Dermavant, Incyte, Quriel, SCM Lifescience, and Syneos. He is an investigator for Galderma, Menlo, and Trevi. He has no other potential conflicts including Honoraria, Speakers bureau, Stock ownership or options, Expert testimony, Grants, Patents filed, received, pending, or in preparation, Royalties, or Donation of medical equipment. Suraj Muddasani and Gabrielle Peck have no conflicts of interest.

### REFERENCES

1. Ely JW, Rosenfeld S, Seabury Stone M. Diagnosis and management of tinea infections. *Am Fam Physician*. 2014;90:702-10.
2. Agbulu CO, Iwodi C, Onekutu A. In vitro susceptibility test of some antifungal drugs on selected dermatophytes and yeasts isolated from patients attending hospitals in makurdi environ. *Microbiology Journal*. 2015;5:9-16.
3. Gupta AK, Foley KA, Versteeg SG. New Antifungal agents and new formulations against dermatophytes. *Mycopathologia*. 2017;182:127-41.
4. National Ambulatory Medical Care Survey CDC; 2016. [https://www.cdc.gov/nchs/data/ahcd/namcs\\_summary/2016\\_namcs\\_web\\_tables.pdf](https://www.cdc.gov/nchs/data/ahcd/namcs_summary/2016_namcs_web_tables.pdf)
5. 2016 National Ambulatory Medical Care Survey Public Use Micro-Data File Documentation. Available at: [https://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Dataset\\_Documentation/NAMCS/doc2016.pdf](https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NAMCS/doc2016.pdf)
6. Brennan B, Leyden JJ. Overview of topical therapy for common superficial fungal infections and the role of new topical agents. *J Am Acad Dermatol*. 1997;36:S3-8.

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