

# Retrospective Study of Factors Affecting Compliance in Patients Who Were Prescribed Efinaconazole 10% Solution for Onychomycosis

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## Background and Purpose

Onychomycosis has a worldwide prevalence of 2-10%, accounting for 50% of all nail diseases. It may result in pain, paresthesias, lifestyle and social impairments. Complete cure has been difficult to achieve with antifungals. Patient compliance is one critical aspect of successful treatment and understanding its elements may help to improve efficacy. In this retrospective study, our objectives were to determine the degree of compliance for patients using efinaconazole 10% solution for onychomycosis treatment, and identify factors affecting patient compliance.

### Objective:

- To determine the degree of compliance for patients using efinaconazole 10% solution for onychomycosis treatment.
- Identify factors affecting patient compliance in a retrospective analysis.

## Methods

Prescription dispensary data for efinaconazole 10% solution from 2015-2019 was obtained from ahmaRx using Pioneer Rx software. Patients who received a prescription for efinaconazole 10% solution with the diagnosis code "onychomycosis" were included in the analysis. Microsoft Excel Datapack was used to analyze trends between refill number and patient age, prescriber type, and medication cost. A one-way ANOVA was used to evaluate variance ( $p < 0.05$ ).

### Setting:

Patients prescribed medication for the treatment of onychomycosis of at least one nail from March 24, 2015 to December 31, 2018.

### Main Outcomes and Measures:

Continuing compliance was defined and measured as medication refills. The measured outcomes included total and average refills for each analyzed category.

## Results

### Overall Compliance:

The overall refill rate of patients was extremely low, with 1700/2240 patients (75.8%) not filling the initial prescription. The refill rate for patients followed an exponential decrease as the number of medication refills increased (Figure 1), with the number of patients refilling 10 times or more dropping to single digits.

### Cost of Medication:

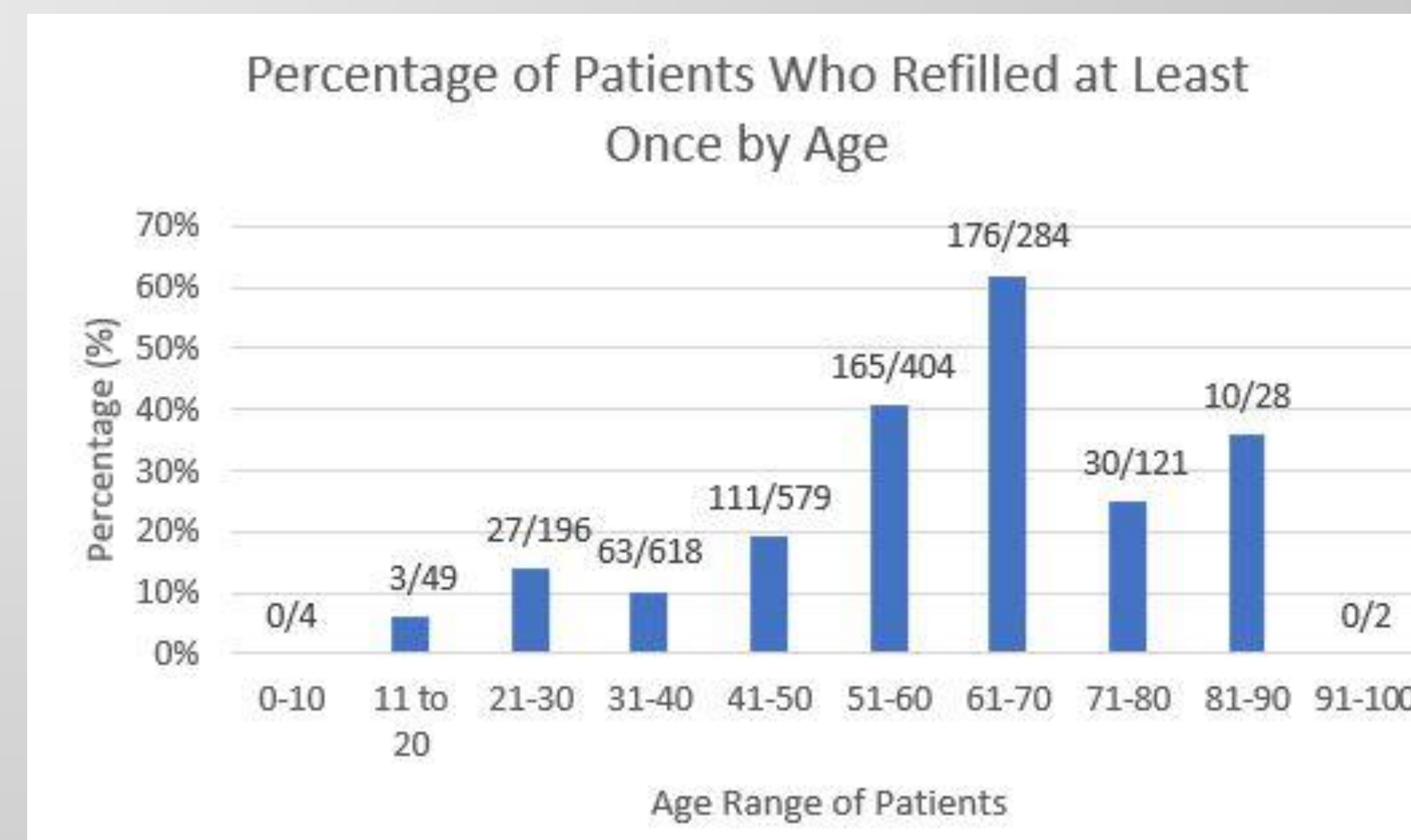
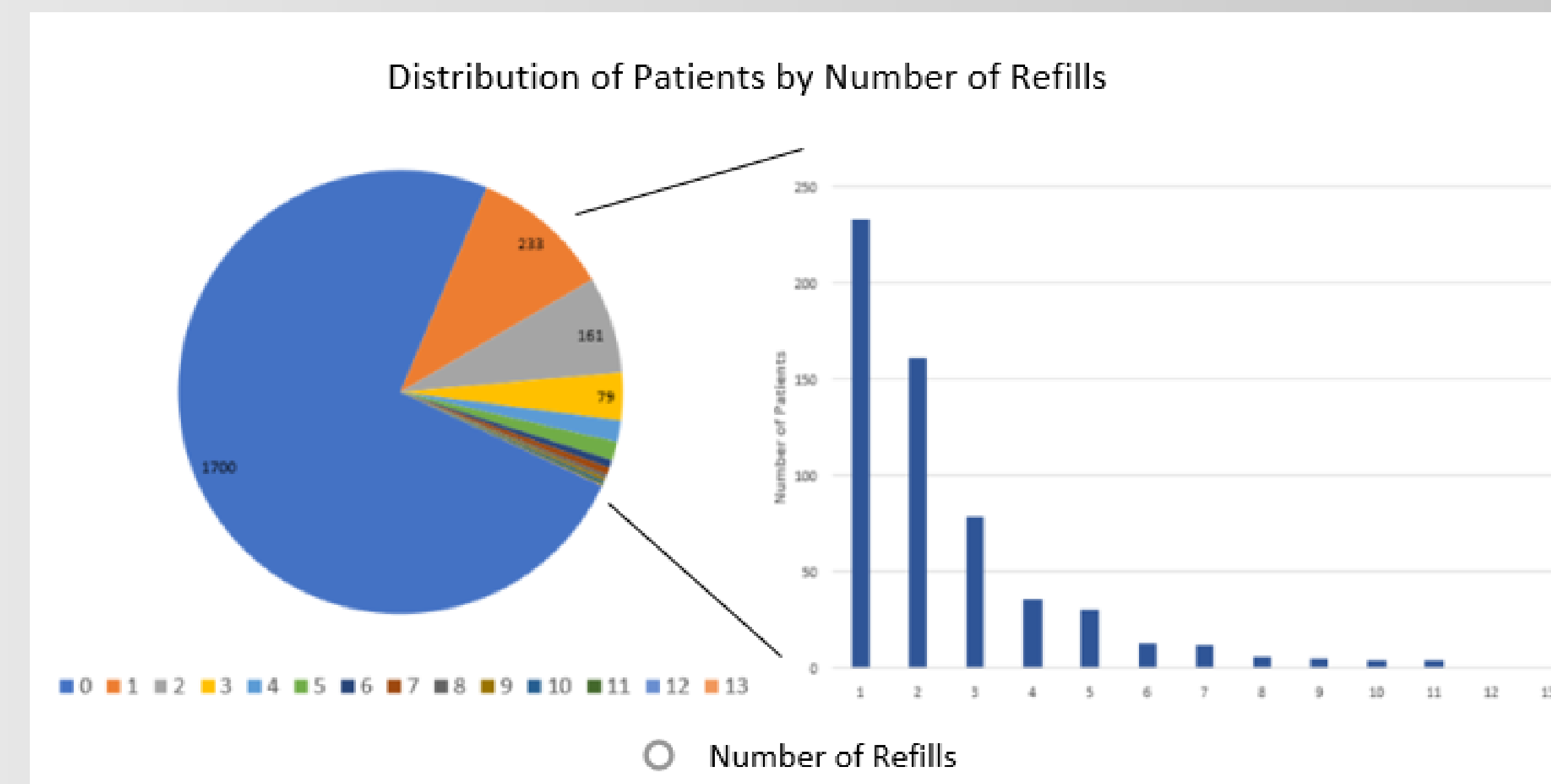
Patients paid a wide range of prices (\$0-\$500) for the medication. For patients who refilled at least once, the group with the highest average number of refills, 3, paid \$1-\$25 (Table 1), and this group was also the most likely to refill (57%). The group with the lowest percentage of patients who refilled once paid over \$150 for the medication, but the second lowest group was the one which paid \$0. The one-way ANOVA was significant for variations between the average number of refills ( $p = .01$ ).

### Age Group:

Overall, 25.6% of patients refilled at least once, and patients ages 61-70 had the highest percentage of refills, 61.9% (Figure 2). The average number of refills for patients refilling at least once ranged from 2.17 (ages 21-50) to 2.77 (ages 71-100). However, the one-way ANOVA was negative for significant variations in the number of times patients in different age groups refilled prescriptions ( $P = 0.07$ ).

### Prescriber Type:

Patients who received prescriptions from MD or DOs were more likely to refill (31.6%) compared to those who received prescriptions from DPM (23.1%) or NP/PA (21.1%), however these differences were not statistically significant ( $p = 0.07$ ).



AMOUNT PATIENT PAID (\$)	NUMBER OF PATIENTS	NUMBER PTS WITH ≥ 1 REFILL	PROPORTION OF PATIENTS WITH ≥ 1 REFILL	MEAN REFILLS	MEAN REFILLS OF PATIENTS WITH ≥ 1 REFILL
0	1532	203	0.132	0.290	2.211
1 TO 25	493	283	0.574	1.785	3.028
26-75	235	106	0.451	0.808	1.792
76-150	103	25	0.242	0.245	1
151-250	72	2	0.027	0.027	1
251-500	6	0	0	0	0

## Discussion

Physician-patient education is imperative to improve proper medication usage and may account for our findings that patients with prescriptions from MD/DOs were more likely to refill. Physicians have the necessary training to explain the disease, treatment, and consequences of non-compliance to patients and build trusting relationships, which is a strong predictor of compliance. While several factors affect patient trust, physicians should still tailor treatment to the individual.

Patient compliance is an important factor in treatment selection and efficacy of onychomycosis therapy. Physicians should individualize treatments based on clinical presentation, while considering factors such as cost, lifestyle, and goals. Clear explanations of treatment schedule and proper medicine application are also helpful in managing patient expectations. Addressing compliance may dramatically improve treatment outcomes and patient satisfaction and help to optimize therapy.

## Conclusion

Compliance is affected by several factors, including patient level of awareness and education on the disease, quality of life, personal income, forgetfulness and impatience with treatment. Efinaconazole 10% treatment of onychomycosis has an extremely low rate of treatment completion, with the majority of patients failing to refill the medication. Our data showed a significant percentage of patients failing to complete the treatment course, with the majority ending soon after initiation, with an estimated 0.4%-1.4% of patients completing a full course of treatment\*. This is an extremely low rate of compliance and necessitates an investigation into causative factors.

Treatment cost was the most significant measured variable affecting number of refills, with a \$1-\$25 price range associated with the highest average number of refills. Although previous studies have determined certain age groups have a higher level of compliance, our data suggested age may not be a strong predictor of patient compliance on its own.

## Acknowledgements

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