

Reasons for Treatment Alteration in Dermatology Patients: Insights from Unstructured Clinical Notes



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BACKGROUND

- Reasons for treatment alteration, including permanent discontinuation, dosage/frequency modification, and temporary discontinuation of pharmacologic therapies, are typically only available in electronic health record (EHR) unstructured data and consequently poorly understood at a large scale.
- Knowledge of reasons for treatment alteration could help inform pharmacoepidemiology studies and present opportunities to improve upon current treatment regimens.

OBJECTIVE

- The objective of this research was to develop and validate categories of reasons for treatment alteration in the real-world setting using unstructured clinical notes of dermatology patients.

METHODS

- Unstructured clinical notes from 2017-2021 available in patient EHRs from 5 specialty dermatology networks in the OMNY Health Database were accessed and deidentified.
- Notes were subset to sentences or paragraphs that were included in the designated EHR section to be relevant to treatment modification.
- Approximately 0.3% of these sentences were randomly sampled, manually reviewed, and grouped into 9 categories of treatment alteration reasons:
 - **ADE**: adverse drug event
 - **RES**: symptom resolution
 - **IEF**: drug ineffectiveness
 - **FIN**: financial or insurance coverage reasons
 - **MIS**: inconvenience of treatment instructions / possible misuse
 - **PRG**: pregnancy
 - **ABU**: medication abuse
 - **INT**: interaction with another drug
 - **OTH**: other reason not previously described
- Percentage of reasons belonging to each category among included notes were calculated.

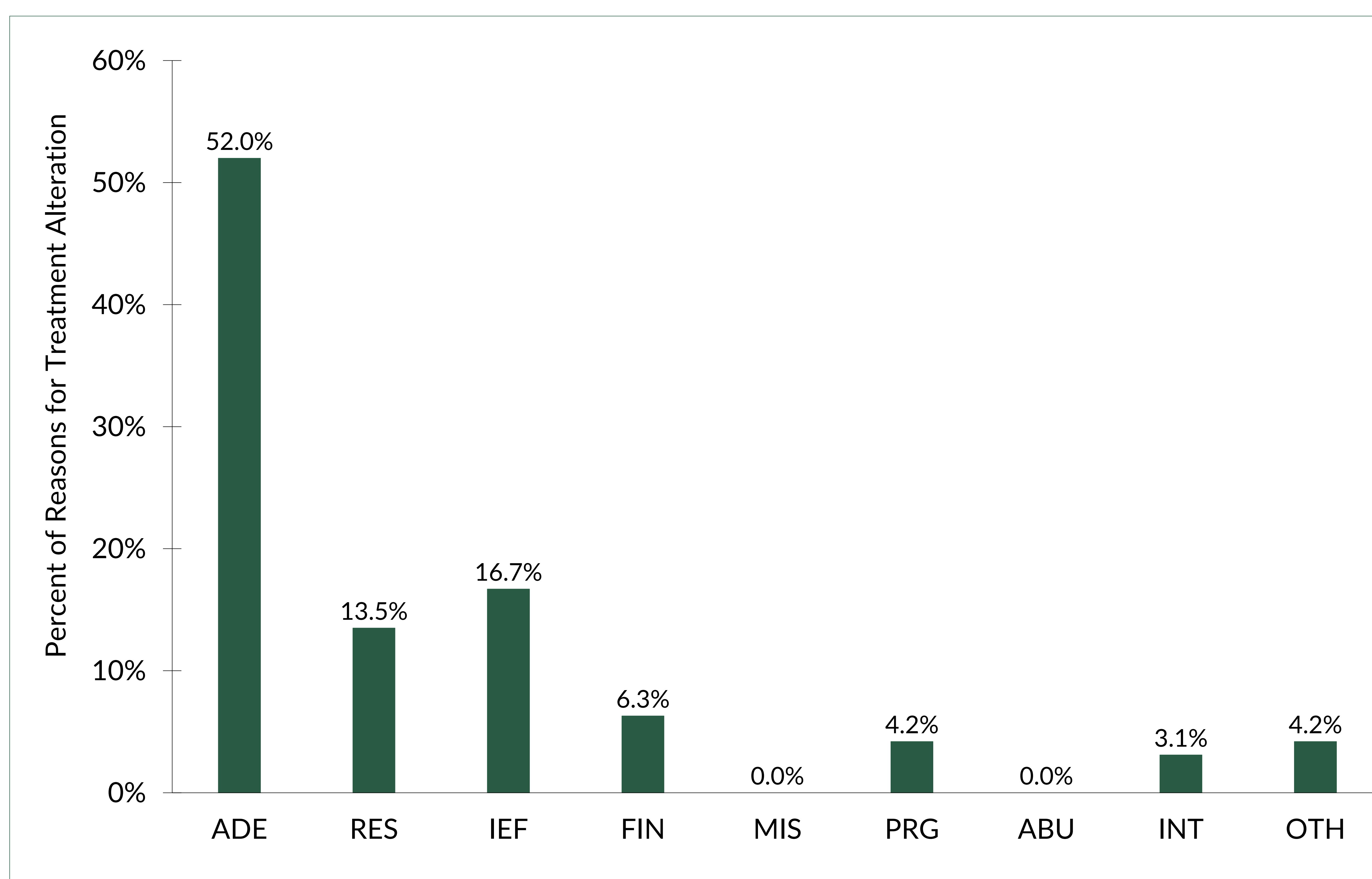
CONCLUSIONS

- Reasons for treatment alteration are not often documented systematically in the designated EHR section in the real-world dermatology setting.
- Only 13.5% of selected notes indicated alteration due to symptom resolution, suggesting that dermatology patients are most often altering treatment for reasons other than treatment effectiveness.
- Directions for future research may include the implementation of natural language processing models to classify reasons for treatment alteration automatically in unstructured clinical notes.

RESULTS

- Approximately 448 million note entries (sentences or paragraphs) across 4.1 million patients and 16.0 million encounters were accessed.
- Of these entries, 569,155 (0.1%) were tagged by the EHR as relevant to treatment alteration.
- Of the 1,745 entries randomly sampled and manually reviewed, 1,650 (94.6%) contained only a drug name without a reason for modification, and 95 (5.4%) contained at least one reason, with one entry containing two reasons.
- Percentages of the reasons for treatment alteration observed among selected notes are illustrated in Figure 1:

Figure 1: Percentages of Reasons for Treatment Alteration Observed Among Dermatology Patients



- The most common reason for treatment alteration in the specialty dermatology setting was ADE (over half of treatment regimens)
- IEF (16.7%) and RES (13.5%) were the second and third most observed reasons, respectively.
- FIN, PRG, and INT were also observed (all < 10%), while ABU and MIS were not observed in this setting.
- Only 4% were categorized as OTH, indicating that the other 8 categories adequately cover the spectrum of reasons for alteration.

CONTACT INFORMATION

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