

RESEARCH LETTER

Analysis of Self-Reported Data Accuracy Among Board-Certified and Trainee Dermatologists in the CMS National Provider Identifier Registry

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INTRODUCTION

Administrative burden is an increasing problem in medicine and was recently cited as the number one reason for burnout among academic dermatologists.¹ One such administrative requirement is updating the National Plan and Provider Enumeration System (NPPES) database. This database includes a National Provider Identifier (NPI) number, assigned to every healthcare provider as a permanent identifier through changes in location or training. The database also includes self-reported evolving meta-data on specialty, location, training level, and other details.²

The NPPES database is currently being referenced for utilization studies in dermatology and has been proposed for mapping healthcare resources across the United States as well as including physicians in national surveys.³ In order to be effective, the data must be accurate. While studies exist on the accuracy of self-reported data in other specialties,⁴ the accuracy of the NPI registry among dermatologists is unknown.

METHODS

Data for all 181 dermatology residents and faculty from Massachusetts General,

Brigham and Women's, and Beth Israel Hospitals were extracted from the CMS NPI registry on 11/12/18 and cross-checked with known institutional data. These data were then compared with a recent study of radiologists,⁴ hypothesizing that dermatologists may have higher inaccuracy rates due to administrative burden. We also examined differences between residents and attendings. Our null hypothesis was that accuracy would not be significantly different between the groups. Fisher exact test was used to assess the hypotheses.

RESULTS

High levels of inaccuracy were found across almost all categories, with residents having significantly higher rates of inaccuracy compared to attending physicians in reported specialty and state. 24% (43/181) of individuals had an incorrect primary taxonomy (specialty) listed. 10% (15/149) of attending dermatologists had an incorrect practice state listed. Since initial registration, 56% (19/32) of residents, compared to only 5% (7/149) of attending physicians, had never updated their information. 4% (6/149) of attending physicians were still listed as students in a training program (Table 1). When compared with radiologists, rates of inaccuracy did not significantly differ other

than for self-reported practice location where dermatologists' inaccuracy was higher ($p < .0001$) (Table 2).

Table 1. Accuracy of self-reported certification and location in the CMS National Plan and Provider Enumeration System of board-certified and trainee dermatologists on a single day in November 2018, broken down by training status.

| | Residents (%) | Attending (%) | Total (%) | p |
|--|---------------|---------------|-------------|---------|
| n | 32 | 149 | 181 | |
| Never Updated | 19 (56.25) | 7 (4.70) | 25 (13.81) | < .0001 |
| Incorrect Primary Taxonomy (Specialty) | 17 (53.13) | 15 (10.07) | 43 (23.76) | < .0001 |
| Listed as Student in Training Program | 15 (46.88) | 6 (4.03) | 21 (11.60) | < .0001 |
| Incorrect State | 9 (28.13) | 16 (10.74) | 25 (13.81) | .0095 |
| Incorrect Address | 18 (56.25) | 85 (57.05) | 103 (56.91) | .934 |
| Incorrectly Listed Sole Proprietor | 4 (12.50) | 23 (15.44) | 27 (14.92) | .674 |
| No License Number | 9 (28.13) | 4 (2.68) | 13 (7.18) | < .0001 |
| Average Days Since Last Updated | 674.1 | 2072.4 | 1825.2 | < .0001 |

Table 2. Accuracy of self-reported specialty and location in the CMS National Plan and Provider Enumeration System among dermatologists on a single day in November 2018, compared to similar study of radiologists³.

| | Dermatology Residents (%) | Radiology Residents ³ (%) | p | Dermatology Attending (%) | Radiology Attending ³ (%) | p |
|--|---------------------------|--------------------------------------|------|---------------------------|--------------------------------------|---------|
| n | 32 | 39 | | 149 | 124 | |
| Incorrect Primary Taxonomy (Specialty) | 17 (53.13) | 28 (71.79) | .139 | 15 (10.07) | 6 (4.84) | .116 |
| Listed as Student in Training Program | 15 (46.88) | 18 (46.15) | 1.00 | 6 (4.03) | 2 (1.61) | .299 |
| Incorrect Practice Location | 18 (56.25) | 20 (51.28) | .812 | 85 (57.05) | 20 (16.12) | < .0001 |

DISCUSSION

Upon applying for an NPI number, providers agree to notify the NPI Enumerator within 30 days of any change.⁵ Despite this agreement, the level of inaccuracy is high. This may be due to increased administrative burden or simply a result of a lack of awareness among dermatologists of the requirement to update this database. These inaccuracies have implications for dermatologists anywhere NPI numbers are used, including validation of healthcare transactions, adverse actions from licensing authorities, and identification of providers in patient's electronic medical records. Inaccuracies also limit the intended applications of the NPI system to increase healthcare efficiency and minimize fraud and abuse.

While our study is limited by its cross-sectional nature and to data from our own institutions due to knowledge of provider records for cross-referencing, we found similar patterns of non-compliance analyzing small samples of several dermatology programs across the country for whom we had independent provider details. Inaccuracies may be a reflection of the particularly large administrative requirements in today's medical environment that are progressively difficult to sustain.

Increased program support for younger trainees who have more frequent changes to their location, specialty, and license level may help mitigate outdated information and promote a higher degree of overall fidelity. For example, dermatology programs may be able to implement small administrative changes upon entry or graduation of

trainees. Simply increasing awareness among dermatologists of the requirement to update this national registry, which can be done online by logging in at <https://nppes.cms.hhs.gov>, may also increase accuracy and contribute to effective analysis, insights and future policies affecting our field.

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