

Analysis of Problem List Interactions in an Outpatient Setting

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INTRODUCTION

- The importance of maintaining an accurate, up-to-date problem list has been highlighted by the Centers for Medicare & Medicaid Services (CMS) in their stage 3 program requirements for Promoting Interoperability (PI) Programs.
- Furthermore, the problem list is often used to quickly reference active medical problems by clinicians.
- As problem lists grow, they often have problems that are no longer active making it more difficult to identify what medical problems a patient has.
- There is currently no defined criteria for the addition and removal of problems list items.
- This research is meant to provide guidance for clinical criteria to remove unnecessary problems and encourage the formulation of a common standard.

METHODS

- Outpatient clinics associated with a quaternary hospital network were identified. It was decided to exclude inpatient as prior studies showed the majority of problem list interactions occurred in outpatient settings.
- ICD9CM, ICD10CM, and SNOMED codes were collected for each office visit. These were associated with both the provider and patient using de-identified, randomized identifiers.
- Other information was collected for each problem list item such as: clinic location, specialty, provider, provider title.
- For patients to remain de-identified, the addition/removal date for each problem list was calculated as “days since date of birth”.
- This dataset was imported into a PostgreSQL database in order to run complex queries.
- For easy reproducibility, an imaging software was used called “Docker” that allows for the easy mobility of the dataset. Another researcher can quickly start up the database and run all analysis queries with one command.

ORGANIZATION



OUR DATASET

82,600 de-identified patients
132,649 unique office visits
267,596 ICD10CM problem list items

OBJECTIVE

- This study focuses on understanding the patterns behind how clinicians add and remove items from the problem list.

RESULTS

Additions: 254,967 - Removals: 12,643

Removal Rates by Specialty

Internal Medicine	6.92%
Geriatrics	5.01%
Otolaryngology	4.82%
Rheumatology	4.55%

Table A. Removal rates compared to overall problem list interactions for the respective specialty.

Longest Removal Duration by ICD10 Code

Description	Days on List	Occurrences
Presence of intraocular lens	279	114
Encounter for general adult medical examination without abnormal findings	248	111
Encounter for gynecological examination (general) (routine) without abnormal findings	248	97
Essential (Primary) Hypertension	193	88
Other long term (current) drug therapy	348	88
Cough	285	75
Age-related nuclear cataract, right eye	157	73

Table B. Problem list items with the longest duration with at least five removals.

CONFLICT OF INTEREST

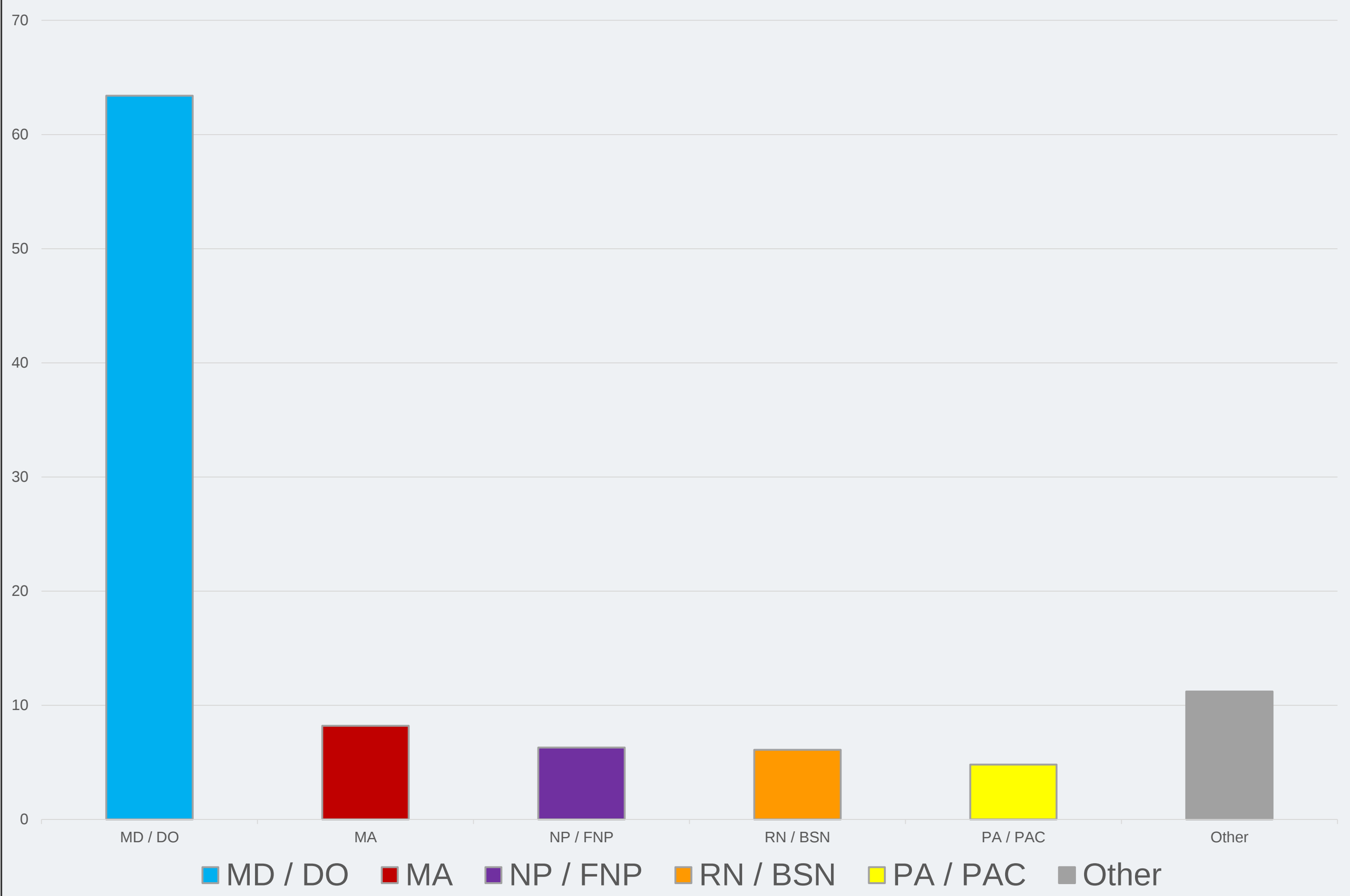
No disclosures

CONTACT / REFERENCES

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LIMITATIONS

- This study is limited to the organizational practices of one academic center. It is possible that there might be a great variety of addition/removal procedures in place at other institutions.
- There may be different interactions based upon clinician title (e.g., MD, DO, NP, PA) that could not be fully analyzed using our limited dataset.
- Since we only analyzed outpatient settings, we do not know if there is substantial problem list modifications occurring in an inpatient setting.

FUTURE STUDY

- It is possible to mark problem list items as “resolved” instead of “removed”. We are in the process of analyzing “resolved” items to see if there are any differences.
- Since we have data separated into unique visits, it may be possible to look for transition points in which items are added/removed in the same visit.
- We want to integrate our data analysis methods with the Observational Medical Outcomes Partnership (OMOP) Common Data Model (CDM) so that they can be quickly applied to other datasets.

CONCLUSION

- Some of the problem list items that were removed from the problem list with the highest duration were symptoms instead of diseases.
- Internal medicine had the highest rate of problem list item removal compared to total interactions. This supported previous studies showing that primary care is the “gatekeeper” of the problem list.