**Introduction**

- Reconciling medication and problem lists
  - Make sure medications have indications
  - Make sure indications have medications

- Used in:
  - Medication reconciliation
  - Medication therapy management (MTM)

- Dependent on the completeness of the lists

**Objective:**

To estimate the proportion of e-prescribed medications with a potential indication listed on the patient’s problem list using MEDI (MEDication Indication) resource.

**Results**

![Concept Map]

**Medication and indication matching**

<table>
<thead>
<tr>
<th>Medications</th>
<th>MEDI</th>
<th>MEDI-HPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matched to Indications, n</td>
<td>165,367</td>
<td>101,271</td>
</tr>
<tr>
<td>Total No. of Documented Medications, n</td>
<td>270,045</td>
<td>270,045</td>
</tr>
<tr>
<td>Match %</td>
<td>61.2</td>
<td>37.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Indications</th>
<th>MEDI</th>
<th>MEDI-HPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matched to Medications, n</td>
<td>158,678</td>
<td>90,302</td>
</tr>
<tr>
<td>Total No. of Documented Indications, n</td>
<td>424,989</td>
<td>424,989</td>
</tr>
<tr>
<td>Match %</td>
<td>37.3</td>
<td>21.2</td>
</tr>
</tbody>
</table>

**Patient Characteristics**

- Patients, n: 62,191
- Gender: Male, 38%
- Age, mean (IQR, median): 60 (50-71, 61)
- Prescriptions per total patients, mean (IQR, median): 4.3 (2-6, 3)
- Diagnoses per total patients, mean (IQR, median): 6.8 (3-9, 6)

**Medications**

- Lisinopril
- Aflazosin
- Iramidine
- Insulin
- Dicoumarol
- Paroxetine
- Gabapentin

**Diagnoses**

- Heartburn
- HTN
- Depression
- Asthma
- Angina
- Migraine

**Limitations**

- Indications that are documented in a patient's EHR may have been treated exclusively with an inpatient/clinic treatment course, at an outside institution, or with prescriptions that were not e-prescribed
- The version of MEDI used was last updated in Jan. 2013
- Unstructured data in medication and problem lists was abundant

**Methods**

- We mapped prescription medication codes from First Databank to RxNorm generic drug ingredient names (RxUI, TTY=IN)
- We mapped problems from SNOMED CT to ICD-9 used by MEDI
- We established a gold standard by having two pharmacists independently review e-prescriptions and problem lists from 30 randomly selected patients.
- MEDI was aggregated from medication-indication pairs in RxNorm, Side Effect Resource (SiDER)-2, MedlinePlus, and Wikipedia.
- MEDI High Precision Subset (HPS) only contains pairs from RxNorm or two of the other three resources.

**Conclusion**

- We were not able to match indications from the patient problem list for the majority of e-prescribed medications using MEDI-HPS
- MEDI-HPS has a higher precision & recall than MEDI
- This marks the first use of MEDI-HPS matching e-prescribed medications with indications
- Many problem lists (and potentially medication lists) are incomplete in the EHR, emphasizing the potential beneficial use cases, of using a medication-indication matching resource such as MEDI-HPS

**References**


**Contact Information**

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**E-prescriptions and Problem Lists: Looking for Indications Using the Open-Source MEDI Medication-Indication Matching Resource**

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