February 13th, 2024
Community call update
Week 1: Alzheimer's disease (AD)
- C1: Orientation call
- AD Literature review complete
- AD definition replicated
- Community call update
- Phenotype Representation analysis for AD
- Cohort Diagnostics PheValuator run
- Atlas demo Cohort Diagnostics review

Week 2: Non-Small Cell and Small Cell Lung Cancer (NSCLC)
- LC Literature review complete
- Community call update
- MDD Literature list available
- NSCLC definition replication
- Atlas QA Cohort Diagnostics review

Week 3: Major Depressive Disorder
- Community call update

Week 4: Pulmonary Arterial Hypertension
- Community call update
Understanding Alzheimer's Disease Definitions: A Review from Phenotype February 2024

- **Subject Count & Incidence Rate Variability**
  - Up to 6-fold variation observed
  - Highlights the impact of differing criteria

- **Overlap in Subject Identification**
  - Ranged between 5% to 70%
  - Indicates heterogeneity in identified populations

- **Consistent Age and Gender Distribution**
  - Uniform across different definitions
  - Suggests reliability of these demographic factors in AD research

- **AD-Specific Diagnosis in ADRD Population**
  - Accounts for 5-20% of cases
  - Emphasizes the index date misspecification with treatments and other types of AD observed to prior to AD diagnosis

- **Data Domains Utilized**
  - Diagnosis codes, drug exposure, care setting (visit/type provider)
  - Represents variation in how data is captured for AD
# PheValuator results

<table>
<thead>
<tr>
<th>Description</th>
<th>sensitivity95Ci</th>
<th>ppv95Ci</th>
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<tbody>
<tr>
<td>Earliest event of Alzheimer's disease per Ponjoan</td>
<td>0.728</td>
<td>0.843</td>
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<tr>
<td>30 CCW Alzheimer's disease</td>
<td>0.541</td>
<td>0.953</td>
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<tr>
<td>27 CCW Alzheimer's disease</td>
<td>0.714</td>
<td>0.920</td>
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<tr>
<td>27 CCW Alzheimer's disease and related disorders or senile dementia</td>
<td>0.829</td>
<td>0.669</td>
</tr>
<tr>
<td>27 CCW Alzheimer's disease and related disorders or senile dementia - Bynum-EM revision</td>
<td>0.829</td>
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<tr>
<td>27 CCW Alzheimer's disease and related disorders or senile dementia Bynum-standard revision</td>
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<td>Alzheimer's disease per Harris JAD 2023</td>
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<td>Alzheimer dementia per Grande 2020</td>
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<tr>
<td>Alzheimer disease per Chen 2020</td>
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<td>Alzheimer's disease per Imfeld, 2013</td>
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</table>
W2: NSCLC and SCLC Phenotypes
What did we do?

185 manuscripts identified for full text review (Jan 2020-Feb 2024)

Data extraction performed on 40 manuscripts

- No distinction between NSCLC and SCLC
- No full text
- No detail on the phenotypes
- Probabilistic phenotypes

- Cancer registry linked with administrative claims: 16 SEER-Medicare, 3 others
- Other data sources (administrative claims, EMR, Oncology EMR, ...
Next steps

- Study package
- Open call to plan the manuscript
- LC cohort replication task
- Literature scan for other conditions
Summary

• All phenotypes are more complex than sheer condition
  – There are always additional requirements (stages and modifiers, biomarkers, treatments)
• If NSCLC is extracted from the mixed phenotypes
  – Everyone is using a different code list
  – The list is heavily dependent on the database provided
  – ICD9/10 lacks histology information
  – ICDO only in registries
• Each phenotype has additional time coverage/washout/follow-up requirements
  – They usually depend on the purpose of the study

→ There is a strong time and database dependency when defining the logic, code list and the additional criteria
→ NSCLC or SCLC do not exist as such