

Deliverable 2 – Health Analytics Project Design

Anti-Depressants Link to Heart Disease

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1. Clinical Question

Do patients, above age 18, on SSRI anti-depressant medication have a higher chance of contracting heart disease than those who are not medicated?

2. Concept and Cohort Links

2.1. Concept Id #341 – [spalguyev3] Antidepressants

<http://gt-health-analytics-2.us-east-2.elasticbeanstalk.com/#/conceptset/341/conceptset-export>

2.2. Concept Id #344 – [spalguyev3] Depression

<http://gt-health-analytics-2.us-east-2.elasticbeanstalk.com/#/conceptset/344/conceptset-expression>

2.3. Concept Id #348 – [spalguyev3] Heart Disease

<http://gt-health-analytics-2.us-east-2.elasticbeanstalk.com/#/conceptset/348/conceptset-export>

2.4. Target Cohort Id # 233 – [spalguyev3] Patients with depression and prescribed SSRIs

<http://gt-health-analytics-2.us-east-2.elasticbeanstalk.com/#/cohortdefinition/233>

2.5. Comparator Cohort Id # 235 – [spalguyev3] Patients with depression, not on SSRIs

<http://gt-health-analytics-2.us-east-2.elasticbeanstalk.com/#/cohortdefinition/235>

2.6. Outcome Cohort Id #238 – [spalguyev3] Patients with occurrence of Heart Disease

<http://gt-health-analytics-2.us-east-2.elasticbeanstalk.com/#/cohortdefinition/238>

3. Concept and Cohort Text View

3.1. Concept Id #341 – [spalguyev3] Antidepressants

```
{  
  "items": [  
    {  
      "concept": {  
        "CONCEPT_ID": 19004895,  
        "CONCEPT_NAME": "Fluoxetine 20 MG Oral Capsule [Prozac]",  
        "STANDARD_CONCEPT": "S",  
        "STANDARD_CONCEPT_CAPTION": "Standard",  
        "INVALID_REASON": "V",  
        "INVALID_REASON_CAPTION": "Valid",  
        "CONCEPT_CODE": "104849",  
        "DOMAIN_ID": "Drug",  
        "VOCABULARY_ID": "RxNorm",  
        "CONCEPT_CLASS_ID": "Branded Drug"  
      },  
      "isExcluded": false,  
      "includeDescendants": true,  
      "includeMapped": false  
    },  
    {  
      "concept": {  
        "CONCEPT_ID": 19037642,  
        "CONCEPT_NAME": "Sertraline 100 MG Oral Tablet [Zoloft]",  
        "STANDARD_CONCEPT": "S",  
        "STANDARD_CONCEPT_CAPTION": "Standard",  
        "INVALID_REASON": "V",  
        "INVALID_REASON_CAPTION": "Valid",  
        "CONCEPT_CODE": "208149",  
        "DOMAIN_ID": "Drug",  
        "VOCABULARY_ID": "RxNorm",  
        "CONCEPT_CLASS_ID": "Branded Drug"  
      },  
      "isExcluded": false,  
      "includeDescendants": true,  
      "includeMapped": false  
    }  
  ]  
}
```

3.2. Concept Id #344 – [spalguyev3] Depression

```
{  
  "items": [  
    {  
      "concept": {  
        "CONCEPT_ID": 432883,  
        "CONCEPT_NAME": "Recurrent major depressive episodes, moderate",  
        "STANDARD_CONCEPT": "S",  
        "STANDARD_CONCEPT_CAPTION": "Standard",  
        "INVALID_REASON": "V",  
        "INVALID_REASON_CAPTION": "Valid",  
        "CONCEPT_CODE": "191611001",  
        "DOMAIN_ID": "Condition",  
        "VOCABULARY_ID": "SNOMED",  
        "CONCEPT_CLASS_ID": "Clinical Finding"  
      },  
      "isExcluded": false,  
      "includeDescendants": true,  
      "includeMapped": false  
    }  
  ]  
}
```

3.3. Concept Id #348 – [spalguyev3] Heart Disease

```
{  
  "items": [  
    {  
      "concept": {  
        "CONCEPT_ID": 315286,  
        "CONCEPT_NAME": "Chronic ischemic heart disease",  
        "STANDARD_CONCEPT": "S",  
        "STANDARD_CONCEPT_CAPTION": "Standard",  
        "INVALID_REASON": "V",  
        "INVALID_REASON_CAPTION": "Valid",  
        "CONCEPT_CODE": "413838009",  
        "DOMAIN_ID": "Condition",  
        "VOCABULARY_ID": "SNOMED",  
        "CONCEPT_CLASS_ID": "Clinical Finding"  
      },  
      "isExcluded": false,  
      "includeDescendants": true,  
      "includeMapped": false  
    }  
  ]  
}
```

```
}
```

```
]
```

```
}
```

3.4. Target Cohort Id # 233 – [spalguyev3] Patients with depression and prescribed SSRIs

[spalguyev3] Patients with depression and prescribed SSRIs

Initial Event Cohort

People having any of the following:

a condition era of [spalguyev3] Depression2

with continuous observation of at least 0 days prior and 0 days after event index date, and limit initial events to: earliest event per person.

For people matching the Primary Events, include:

Having all of the following criteria:

at least 1 occurrences of a drug era of [spalguyev3] Antidepressants1

with age in years at era start ≥ 18

where event starts between all days Before and all days After index start date

Limit cohort of initial events to: earliest event per person.

Limit qualifying cohort to: earliest event per person.

End Date Strategy

No end date strategy selected. By default, the cohort end date will be the end of the observation period that contains the index event.

Cohort Collapse Strategy:

Collapse cohort by era with a gap size of 0 days.

Appendix 1: Concept Set Definitions

[spalguyev3] Antidepressants

Concept Id	Concept Name	Domain	Vocabulary	Excluded
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Descendants	Mapped
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19004895	Fluoxetine 20 MG Oral Capsule [Prozac]	Drug	RxNorm	NO
YES	NO			

19037642	Sertraline 100 MG Oral Tablet [Zoloft]	Drug	RxNorm	NO
YES	NO			

[spalguyev3] Depression

Concept Id	Concept Name	Domain	Vocabulary	Excluded
------------	--------------	--------	------------	----------

Descendants	Mapped
-------------	--------

432883 Recurrent major depressive episodes, moderateCondition
SNOMED NO YES NO

3.5. Comparator Cohort Id # 235 – [spalguyev3] Patients with depression, not on SSRIs

[spalguyev3] Patients with depression, not on SSRIs

Initial Event Cohort

People having any of the following:

a condition era of [spalguyev3] Depression2

with continuous observation of at least 0 days prior and 0 days after event index date, and limit initial events to: earliest event per person.

For people matching the Primary Events, include:

Having all of the following criteria:

exactly 0 occurrences of a drug era of [spalguyev3] Antidepressants1

with age in years at era start ≥ 18

where event starts between all days Before and all days After index start date

Limit cohort of initial events to: earliest event per person.

Limit qualifying cohort to: earliest event per person.

End Date Strategy

No end date strategy selected. By default, the cohort end date will be the end of the observation period that contains the index event.

Cohort Collapse Strategy:

Collapse cohort by era with a gap size of 0 days.

Appendix 1: Concept Set Definitions

[spalguyev3] Antidepressants

Concept Id	Concept Name	Domain	Vocabulary	Excluded
	Descendants Mapped			

19004895	Fluoxetine 20 MG Oral Capsule [Prozac]	Drug	RxNorm	NO
YES	NO			

19037642	Sertraline 100 MG Oral Tablet [Zoloft]	Drug	RxNorm	NO
YES	NO			

[spalguyev3] Depression

Concept Id	Concept Name	Domain	Vocabulary	Excluded
Descendants Mapped				
432883	Recurrent major depressive episodes, moderate	Condition		
SNOMED	NO	YES	NO	

3.6. Outcome Cohort Id #238 – [spalguyev3] Patients with occurrence of Heart Disease

[spalguyev3] Patients with occurrence of Heart Disease

Initial Event Cohort

People having any of the following:

a condition era of [spalguyev3] Heart Disease1

with age in years at era start ≥ 18

with continuous observation of at least 0 days prior and 0 days after event index date, and limit initial events to: earliest event per person.

Limit qualifying cohort to: earliest event per person.

End Date Strategy

No end date strategy selected. By default, the cohort end date will be the end of the observation period that contains the index event.

Cohort Collapse Strategy:

Collapse cohort by era with a gap size of 0 days.

Appendix 1: Concept Set Definitions

[spalguyev3] Heart Disease

Concept Id	Concept Name	Domain	Vocabulary	Excluded
Descendants Mapped				
315286	Chronic ischemic heart disease	Condition	SNOMED	NO
YES	NO			

4. Cohort Discussion

In order to narrow provide a more targeted cohort criteria, the main question has been rephrased to focus on SSRI type of antidepressants. Additionally, the age group has been expanded to all adults over the age of 18. Of the existing SSRIs, the most common drugs, Prozac and Zantac, were selected as search criteria.

Considering depression is the most leading mental health disorder in the U.S. and heart disease is the leading cause of death for people in the U.S., the cause and effect of the two is a worthwhile effort. Considering the over-diagnosis and overprescription of SSRIs to treat depression, it is important to determine whether these drugs may be a possible cause of increase in certain heart-disease in patients with SSRI prescriptions.

References

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- [9] Sonora Quest Laboratories (2017). Retrieved from https://www.sonoraquest.com/media/1305/icd-10cardio_0417-2.pdf