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# Supplementary appendix

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# Supplemental Appendix to *Risk of hydroxychloroquine alone and in combination with azithromycin in the treatment of rheumatoid arthritis: a multi-national, retrospective study*

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All artefacts generated as part of this study are publicly available in an interactive, web-based application at: http://evidence.ohdsi.org/Covid19EstimationHydroxychloroquine

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## S1. Data sources

| Database name | Abbreviation | Population | Patients (millions) | Data History | Data capture process and short database description |
|---|---|---|---|---|---|
| Department of Veterans Affairs | VA | USA (Veteran population) | ~12M | 2000 – | VA OMOP data reflects the national Department of Veterans Affairs health care system, which is the largest integrated provider of medical and mental health services in the United States. Care is provided at 170 VA Medical Centers and 1,063 outpatient sites serving more than 9 million enrolled Veterans each year. |
| IQVIA Disease Analyzer Germany | DAGermany | Germany (General population) | 37M | 1992 – | Anonymized patient records collected from Patient Management software used by general practitioners and selected specialists to document patients' medical records within their office-based practice during a visit. |
| IQVIA UK Integrated Medical Record Data | IMRD | UK (General population) | 15M | 1989 – | Pseudonymized Electronic Medical Records collected from patient management software used within UK Primary Care |
| IQVIA US Ambulatory EMR | AmbEMR | USA (General population) | 49M | 2006 – | General practice EHR, Outpatient specialist EHR - Dataset consists of longitudinal, de-identified ambulatory electronic health records data |
| IQVIA US LRxDx Open Claims | OpenClaims | USA (General population) | 654M | 2010 – | Pre-adjudicated claims at the anonymized patient level collected from office-based physicians and specialists via office management software and clearinghouse switch sources for the purpose of reimbursement. |
| Clinical Practice Research Datalink | CPRD | UK (General population) | 13M | 1995 – | De-identified patient data from a network of general practitioners' practices across the UK. Primary care data are linked to a range of other health related data to provide a longitudinal, representative UK population health dataset. |
| IBM MarketScan Commercial Claims | CCAE | USA (Patients with commercial insurance aged <65 years) | 142M | 2000 – | Data from individuals enrolled in US employer-sponsored insurance health plans. The data includes adjudicated health insurance claims (e.g. inpatient, outpatient, and outpatient pharmacy) as well as enrollment data from large employers and health plans who provide private healthcare coverage to employees, their spouses,and dependents. Additionally, it captures laboratory tests for a subset of the covered lives. |
| IBM MarketScan Multi-State Medicaid Database | MDCD | USA | 26M | 2006 – | Adjudicated US health insurance claims for Medicaid enrollees from multiple states and includes hospital discharge diagnoses, outpatient diagnoses and procedures, and outpatient pharmacy claims as well as ethnicity and Medicare eligibility. |
| IBM MarketScan Medicare Supplemental Database | MDCR | USA (Patients with commercial insurance aged 65+ years) | 10M | 2000 – | Represents health services of retirees (aged 65 or older) in the United States with primary or Medicare supplemental coverage through privately insured fee-for-service, point-of-service, or capitated health plans. These data include adjudicated health insurance claims (e.g. inpatient, outpatient, and outpatient pharmacy). Additionally, it captures laboratory tests for a subset of the covered lives. |
| Integrated Primary Care Information | IPCI | Netherlands (General Population) | 2.5M | 1996- | Complete medical records collected from 450 general practitioners with geographical representation of the country. |
| Japan Medical Data Center | JMDC | Japan (insured general population) | 5.5M | 2005 – | Data from 60 Society-Managed Health Insurance plans covering workers aged 18 to 65 and their dependents (children younger than 18 years old and elderly people older than 65 years old). JMDC data includes membership status of the insured people and claims data provided byinsurers under contract (e.g. patient-level demographic information, inpatient and outpatient data inclusive of diagnosis and procedures, and prescriptions as dispensed claims information) |
| Optum de-identified Clinformatics® Data Mart Database | Clinformatics | USA (Patients with commercial insurance or commercial Medicare insurance) | 85M | 2000 - | Inpatient and outpatient healthcare insurance claims |

## S1, continued.

| Database name | Abbreviation | Population | Patients (millions) | Data History | Data capture process and short database description |
|---|---|---|---|---|---|
| Optum® de-identified Electronic Health Record Dataset | OptumEHR | USA (General population) | 93M | 2006 – | Optum's de-identified electronic health record data medical records database. The medical record data includes clinical information, inclusive of prescriptions as prescribed and administered, lab results, vital signs, body measurements, diagnoses, procedures, and information derived from clinical notes using Natural Language Processing (NLP). |
| The Information System for Research in Primary Care | SIDIAP | Spain-Catalonia (80% of general population) | 7.7M | 2006 – | Electronic health records from primary care partially linked to inpatient data. SIDIAP is also linked to a pharmacy dispensations and primary care laboratories. Healthcare is universal and taxpayer funded in the region, and primary care physicians are gatekeepers for all care and responsible for repeat prescriptions. |

# S2. Cohort definitions

## S2.1. Exposures

In the HCQ versus SSZ study, the index event was defined as the first recorded dispensing or prescription of the drug in a patient's history. For the study of HCQ combined with AZM, follow up started when the second of the two co-administered treatments was initiated while still exposed to the first treatment (e.g. when AZM started during a period of HCQ use, or when HCQ started during a period of AZM use). HCQ use was assumed to be chronic in the management of RA, and AZM was assumed an acute prescription for infection treatment, and therefore inferred persistent exposure to AZM was assessed by allowing up to 30 days between dispensing or prescription records. Cohorts of combined HCQ and amoxicillin were generated using these same rules as an active comparator.

Exposure commenced on the first day of dispensing or prescription recorded with at least 365 days of prior observation period to increase confidence that the exposure was incident. Exposure interval gaps of ≤90 days (HCQ and SSZ) and of ≤30 days (AZM and AMX) between drug dispensing or prescription records were allowed and inferred as persistent exposure. Drug discontinuation was considered in the HCQ study if a patient switched from one study drug to another. Patients who switched from target exposure to comparator exposure, or vice versa, contributed follow-up time to the exposure cohort that they entered first, and were censored at the time of switching in the 'on treatment' analysis.

To view the concept sets and source code lists (e.g. NDC) associated with each outcome, navigate to the URL associated with each exposure cohort name. Then, navigate to the *Concept Sets* tab. The concept sets used in defining the outcome are listed on this page. After selecting a concept set to view, a user can explore the standard concepts used in the definition or the source codes from which the standard concepts are mapped.

### S2.1.1. New users of Hydroxychloroquine with prior rheumatoid arthritis

https://atlas.ohdsi.org/#/cohortdefinition/173

Initial Event Cohort
People having any of the following:

- a drug exposure of [OHDSI Cov19] Hydroxychloroquine[1]
    - for the first time in the person's history
    - with age >= 18

with continuous observation of at least 365 days prior and 0 days after event index date, and limit initial events to: **earliest event per person.**

Inclusion Rules
Inclusion Criteria #1: has rheumatoid arthritis recorded any time on or prior to treatment
Having any of the following criteria:

- at least 1 occurrence of a condition occurrence of [OHDSI Cov19] Rheumatoid arthritis[2] where event starts between all days Before and 0 days After index start date
- or at least 1 occurrence of an observation of [OHDSI Cov19] Rheumatoid arthritis[2] where event starts between all days Before and 0 days After index start date

Limit qualifying cohort to: **earliest event per person.**

End Date Strategy
Custom Drug Era Exit Criteria
This strategy creates a drug era from the codes found in the specified concept set. If the index event is found within an era, the cohort end date will use the era's end date. Otherwise, it will use the observation period end date that contains the index event.
Use the era end date of [OHDSI Cov19] Hydroxychloroquine[1]

- allowing 90 days between exposures
- adding 0 days after exposure end

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

### S2.1.2. New users of sulfasazine with prior rheumatoid arthritis

https://atlas.ohdsi.org/#/cohortdefinition/45

Initial Event Cohort
People having any of the following:

- a drug exposure of [OHDSI Cov19] sulfasalazine[2]
    - for the first time in the person's history

with continuous observation of at least 365 days prior and 0 days after event index date, and limit initial events to: **earliest event per person.**

Inclusion Rules
Inclusion Criteria #1: has rheumatoid arthritis recorded any time on or prior to treatment
Having all of the following criteria:

- at least 1 occurrence of a condition occurrence of [OHDSI Cov19] Rheumatoid arthritis[1]
  where event starts between all days Before and 0 days After index start date

Limit qualifying cohort to: **earliest event per person.**

End Date Strategy
Custom Drug Era Exit Criteria
This strategy creates a drug era from the codes found in the specified concept set. If the index event is found within an era, the cohort end date will use the era's end date. Otherwise, it will use the observation period end date that contains the index event.
Use the era end date of [OHDSI Cov19] sulfasalazine[2]

- allowing 90 days between exposures
- adding 0 days after exposure end

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

### S2.1.3. Users of Hydroxychloroquine + Azithromycin

https://atlas.ohdsi.org/#/cohortdefinition/170

Initial Event Cohort
People having any of the following:

- a drug exposure of Hydroxychloroquine[1]
  - with age >= 18
- a drug exposure of [OHDSI Covid19] Azithromycin[3]
  - with age >= 18

with continuous observation of at least 365 days prior and 0 days after event index date, and limit initial events to: **all events per person.**

Inclusion Rules
Inclusion Criteria #1: has both drugs on index
Having all of the following criteria:

- at least 1 occurrence of a drug exposure of Hydroxychloroquine[1]
  where event starts between 30 days Before and 0 days After index start date
- and at least 1 occurrence of a drug exposure of [OHDSI Covid19] Azithromycin[3]
  where event starts between 30 days Before and 0 days After index start date

Inclusion Criteria #2: prior diagnosis of RA
Having any of the following criteria:

- at least 1 occurrence of a condition occurrence of [OHDSI Cov19] Rheumatoid arthritis[2]
  where event starts between all days Before and 0 days After index start date
- or at least 1 occurrence of an observation of [OHDSI Cov19] Rheumatoid arthritis[2]
  where event starts between all days Before and 0 days After index start date

Limit qualifying cohort to: **earliest event per person.**

End Date Strategy
Custom Drug Era Exit Criteria
This strategy creates a drug era from the codes found in the specified concept set. If the index event is found within an era, the cohort end date will use the era's end date. Otherwise, it will use the observation period end date that contains the index event.
Use the era end date of [OHDSI Covid19] Azithromycin[3]

- allowing 30 days between exposures
- adding 0 days after exposure end

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

### S2.1.4. Users of Hydroxychloroquine + Amoxicillin

https://atlas.ohdsi.org/#/cohortdefinition/171

Initial Event Cohort
People having any of the following:

- a drug exposure of Hydroxychloroquine[1]
  - with age >= 18
- a drug exposure of [OHDSI Covid19] Amoxicillin[3]
  - with age >= 18

with continuous observation of at least 365 days prior and 0 days after event index date, and limit initial events to: **all events per person.**

Inclusion Rules
Inclusion Criteria #1: has both drugs on index
Having all of the following criteria:

- at least 1 occurrences of a drug exposure of Hydroxychloroquine[1]
  where event starts between 30 days Before and 0 days After index start date
- and at least 1 occurrences of a drug exposure of [OHDSI Covid19] Amoxicillin[3]
  where event starts between 30 days Before and 0 days After index start date

Inclusion Criteria #2: Prior diagnosis of RA
Having any of the following criteria:

- at least 1 occurrences of a condition occurrence of [OHDSI Cov19] Rheumatoid arthritis[2]
  where event starts between all days Before and 0 days After index start date
- or at least 1 occurrences of an observation of [OHDSI Cov19] Rheumatoid arthritis[2]
  where event starts between all days Before and 0 days After index start date

Limit qualifying cohort to: **earliest event per person.**

End Date Strategy
Custom Drug Era Exit Criteria
This strategy creates a drug era from the codes found in the specified concept set. If the index event is found within an era, the cohort end date will use the era's end date. Otherwise, it will use the observation period end date that contains the index event.
Use the era end date of [OHDSI Covid19] Amoxicillin[3]

- allowing 30 days between exposures
- adding 0 days after exposure end

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

## S2.2. Outcomes

All safety outcomes for this study were defined as described in the supplementary appendix to Suchard *et al.* (2019).[1] Below is an abbreviated version of the safety outcome definition process from that publication.

For each outcome, we developed an operational phenotype definition to determine if observational data could support evaluation of the outcome. We used the same approach to design, implement, and evaluate all phenotypes. Specifically, we conducted a PubMed literature review to identify past observational studies that used the phenotype as an outcome, looking especially for studies where source record verification or other validation approaches were applied. In addition, we reviewed eMERGE PheKB phenotype entries (https://phekb.org/phenotypes). Clinical guidelines and systematic review of clinical trials of hypertension treatments informed our clinical definitions of cardiovascular outcomes. Where possible, concept sets originated with published code lists (e.g. ICD-9-CM and ICD-10). We augmented these with lexical search and semantic exploration of the OHDSI standardized vocabularies. A clinical adjudicator then reviewed the cohort definitions and associated concept sets. We developed concept definitions using ATLAS, the OHDSI open-source platform (https://github.com/OHDSI/atlas). Because the databases used in this study do not all consistently contain laboratory values, diagnosis records alone identified

outcomes. To assess consistency across data sources as well as general clinical reasonableness, we utilized these cohorts to characterize outcome incidence, stratifying by age decile, gender, and index year (in Suchard *et al*. (2019)). We did not perform source record verification or other validation methods.

To view the concept sets and source code lists (e.g. ICD-9-CM, ICD-10-CM) associated with each outcome, navigate to the URL embedded in the phenotype name. Then, navigate to the *Concept Sets* tab. The concept sets used in defining the outcome are listed on this page. After selecting a concept set to view, a user can explore the standard concepts used in the definition or the source codes from which the standard concepts are mapped.

**Safety outcomes of Interest**

| Phenotype | Logical description | Supporting references |
|---|---|---|
| All-cause mortality | Death record of any type | 3, 4, 5 |
| Cardiovascular-related mortality | Death record with at least 1 cardiovascular-related condition record (myocardial infarction, ischemic stroke, intracranial hemorrhage, sudden cardiac death, hospitalization for heart failure) in 30 days prior to death | 3 |
| Myocardial infarction | Acute myocardial infarction condition record during an inpatient or ER visit; successive records with > 180-day gap are considered independent episodes | 6, 7, 8, 3, 9, 10 |
| Chest pain or angina | The first condition record of chest pain or angina | 11 |
| Heart failure | The first condition record of heart failure, which is followed by at least 1 heart failure condition record in the following year | 7, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 |
| Cardiovascular events | A condition record of ischemic stroke, hemorrhagic stroke, heart failure, acute myocardial infarction or sudden cardiac death during an inpatient or ER visit; successive records with > 180-day gap are considered independent episodes | 6, 7, 8, 3, 9, 10, 22 |
| Cardiac arrhythmia | The first condition record of cardiac arrhythmia, which is followed by another cardiac arrhythmia condition record, at least two drug records for a drug used to treat arrhythmias, or a procedure to treat arrhythmias | 22, 23, 24, 25, 26, 27, 28 |
| Bradycardia | The first condition record of bradycardia, which is followed by another bradycardia condition record | 29, 30 |
| Transient ischemic attack | Transient ischemic attack condition record during an inpatient or ER visit; successive records with > 30-day gap are considered independent episodes | 31, 32 |
| Stroke | Stroke (ischemic or hemorrhagic) condition record during an inpatient or ER visit; successive records with > 180-day gap are considered independent episodes | 12, 3, 9, 24, 31, 33, 34, 35, 36, 32 |
| Venous thromboembolism | Venous thromboembolism condition record of any type; successive records with > 180-day gap are considered independent episodes | 37, 38, 39, 40 |
| Gastrointestinal bleeding | Gastrointestinal hemorrhage condition record during an inpatient or ER visit; successive records with > 30-day gap are considered independent episodes | 41, 9, 42, 43, 44, 45, 46 |
| Acute renal failure | A diagnosis of acute renal failure in an inpatient or ER setting; must be at least 30d between inpatient/ER visits to be considered separate episodes | 47, 48, 49, 50, 51, 52, 53, 54 |
| End stage renal disease | End stage renal disease (ESRD) is defined by at least one diagnosis in any setting, followed by at least one additional diagnosis or a dialysis-related procedure within 90 days | 55, 56, 57 |
| Hepatic failure | The first condition record of hepatic failure, necrosis, or coma | 47, 58, 59, 60, 61, 62, 63, 64, 65 |
| Acute pancreatitis | Acute pancreatitis condition record during an inpatient or ER visit; successive records with >30-day gap are considered independent episodes | 66, 67, 68, 55 |

## S3. Negative control outcomes

Negative control outcomes are conditions believed to have no causal relationship with hydroxychloroquine, sulfasalazine, azithromycin, or amoxicillin exposure and therefore assumed *a priori* to return a hazard ratio (HR) of 1.0 when their risk is compared between exposure cohorts in a pairwise comparison. A HR of a negative control outcome that differs from 1.0 represents an estimate of the residual error of the analysis that was unaccounted for by the analytic specification such as propensity score adjustment. The distribution of residual error estimates from the negative control outcomes reflects a range of biases inherent to the analysis. The estimates on the negative control outcomes represents the empirical null distribution and we used it to compute hazard ratios and confidence intervals calibrated to reflect the observed residual error of the analysis. The negative controls were selected through a semi-automated process [2] and are listed below with the corresponding SNOMED concept ID.

| Concept ID | Concept Name | Concept ID | Concept Name |
|---|---|---|---|
| 378256 | Abnormal reflex | 435516 | Lipoprotein deficiency disorder |
| 4092879 | Absent kidney | 438808 | Mammary duct ectasia |
| 433753 | Alcohol abuse | 441553 | Myoclonus |
| 321689 | Apnea | 4119307 | Neurogenic claudication |
| 78200 | Benign mammary dysplasia | 4209423 | Nicotine dependence |
| 4195873 | Breath smells unpleasant | 438130 | Opioid abuse |
| 443792 | Calculus of bile duct | 313601 | Oxygen supply absent |
| 434327 | Cannabis abuse | 44782778 | Pain disorder with psychological factor |
| 197318 | Cholesterolosis of gallbladder | 4091513 | Passing flatus |
| 432303 | Cocaine abuse | 4022076 | Patient dependence on care provider |
| 439125 | Complete trisomy 21 syndrome | 439971 | Poisoning by anticoagulant |
| 433270 | Cord entanglement without compression | 46286594 | Problem related to lifestyle |
| 4311591 | Cramp in limb | 199876 | Prolapse of female genital organs |
| 441267 | Cystic fibrosis | 4049367 | Psychologic conversion disorder |
| 436233 | Delayed milestone | 440068 | Psychosexual dysfunction |
| 40486120 | Delay in physiological development | 436246 | Reduced libido |
| 439791 | Emotional upset | 73754 | Restless legs |
| 374801 | Foreign body in ear | 4168212 | Restlessness and agitation |
| 259995 | Foreign body in orifice | 138821 | Seborrhea |
| 196456 | Gallstone | 4198492 | Shoulder joint unstable |
| 4166231 | Genetic predisposition | 25518 | Sickle cell trait |
| 434164 | Glycosuria | 4176908 | Snapping thumb syndrome |
| 4163735 | Hemochromatosis | 4248728 | Snoring |
| 439871 | Hemospermia | 138278 | Sprains and strains of joints and adjacent muscles |
| 4058388 | Hypertrophic scar | 4008710 | Stenosis due to any device, implant AND/OR graft |
| 435522 | Hypervitaminosis D | 40479573 | Stimulant abuse |
| 443236 | Hypnotic or anxiolytic dependence | 40483172 | Stimulant dependence |
| 4098604 | Hypomagnesemia | 440233 | Strain of supraspinatus muscle AND/OR tendon |
| 435371 | Hypothermia | 4194160 | Thyroid function tests abnormal |
| 443447 | Iatrogenic hypotension | 4216708 | Urgent desire for stool |
| 374375 | Impacted cerumen | 4275889 | Visual hallucinations |
| 4344500 | Impingement syndrome of shoulder region | 4193634 | Worried |
| 440382 | Learning difficulties | | |

## S4. Covariate construction

The following consistently extracted set of baseline patient characteristics will be constructed for input in the PS model. From this large set of typically tens of thousands of covariates, key predictors of exposure classification will be selected for inclusion in the PS model. Note that not all data sources necessarily include data for all covariates. Covariates to be included:

- Demographics (age in 5-year bands, sex, race, ethnicity, index year, index month)
- All conditions occurrence records aggregated to SNOMED clinical finding level during the following lookback windows:
    - in 365 days prior to and including index date
    - in 30 days prior to and including index date
- All drug exposure records aggregated to RxNorm ingredient level and ATC classes during the following lookback windows:
    - in 365 days prior to and including index date
    - in 30 days prior to and including index date
    - persistent exposure that overlaps index date
- All procedure occurrence records during the following lookback windows:
    - in 365 days prior to and including index date
    - in 30 days prior to and including index date
- Measurements (including laboratories) within, above, and below normal range during the following lookback window:
    - in 365 days prior to and including index date
- Device exposure records during the following lookback windows:
    - in 365 days prior to and including index date
    - in 30 days prior to and including index date
- Comorbidity or risk scores including:
    - Charlson
    - DCSI
    - CHADS2
    - CHADS2VASc

## S5. Exposure cohort counts

The exposure cohort counts are calculated after the following study design criteria have been applied:

- Duplicate patients in the hydroxychloroquine and sulfasalazine with prior RA cohorts are removed from the cohort they qualified for second (i.e. retained in the cohort they qualified for first)
- Duplicate patients in the hydroxychloroquine + azithromycin and hydroxychloroquine + amoxicillin with prior RA cohorts are removed from the cohort they qualified for second (i.e. retained in the cohort they qualified for first)
- Restricted to the calendar time when both exposures in a pairwise comparison (i.e. HCQ vs SSA and HCQ+AZM vs HCQ+AMX) are observed in the database.

After applying these design criteria to the original cohorts, the resulting patients are eligible to contribute data to study diagnostics and potentially to final population-level effect estimates.

| Exposure cohort | Database | Patients | Exposure cohort | Database | Patients |
|---|---|---|---|---|---|
| Hydroxychloroquine with prior RA N = 956,374 | AmbEMR | 57,662 | Hydroxychloroquine + Azithromycin with prior RA N = 323,122 | AmbEMR | 13,197 |
| | CCAE | 66,756 | | CCAE | 32,693 |
| | Clinformatics | 51,352 | | Clinformatics | 23,645 |
| | CPRD | 9,129 | | CPRD | 115 |
| | DAGermany | 3,887 | | DAGermany | 89 |
| | IMRD | 8,855 | | IMRD | 112 |
| | IPCI | 1,479 | | JMDC | 22 |
| | JMDC | 241 | | IPCI | 121 |
| | MDCD | 8,095 | | MDCD | 3,811 |
| | MDCR | 15,853 | | MDCR | 8,156 |
| | OpenClaims | 621,124 | | OpenClaims | 216,195 |
| | OptumEHR | 78,647 | | OptumEHR | 18,592 |
| | SIDIAP | 1,247 | | SIDIAP | 130 |
| | VA | 32,047 | | VA | 6,244 |
| Sulfasalazine with prior RA N = 310,350 | AmbEMR | 15,358 | Hydroxychloroquine + Amoxicillin with prior RA N = 351,956 | AmbEMR | 12,084 |
| | CCAE | 22,407 | | CCAE | 32,591 |
| | Clinformatics | 17,411 | | Clinformatics | 24,547 |
| | CPRD | 11,401 | | CPRD | 5,530 |
| | DAGermany | 5,047 | | DAGermany | 202 |
| | IMRD | 8,463 | | IMRD | 5,104 |
| | IPCI | 528 | | JDMC | 30 |
| | JMDC | 2,099 | | IPCI | 483 |
| | MDCD | 2,200 | | MDCD | 3,818 |
| | MDCR | 5,193 | | MDCR | 9,285 |
| | OpenClaims | 183,566 | | OpenClaims | 233,107 |
| | OptumEHR | 21,944 | | OptumEHR | 16,480 |
| | SIDIAP | 381 | | SIDIAP | 686 |
| | VA | 14,352 | | VA | 8,009 |

*Note that HCQ+AZM vs HCQ+AMX cohorts in JDMC were of insufficient sample to fit PS models so were not included in the study diagnostics or population-level effect estimation analyses.

# S6. Covariate balance before and after PS stratification

## S6.1. HCQ vs SSZ

### S6.1.1. AmbEMR

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 15-19 | 0.1 | 0.1 | 0.00 | 0.1 | 0.1 | 0.00 |
| 20-24 | 0.7 | 0.6 | 0.01 | 0.7 | 0.6 | 0.01 |
| 25-29 | 1.3 | 1.4 | -0.01 | 1.3 | 1.4 | 0.00 |
| 30-34 | 2.4 | 2.2 | 0.02 | 2.3 | 2.3 | 0.00 |
| 35-39 | 3.5 | 3.7 | -0.01 | 3.5 | 3.4 | 0.01 |
| 40-44 | 5.4 | 5.0 | 0.02 | 5.3 | 5.1 | 0.01 |
| 45-49 | 7.4 | 7.0 | 0.02 | 7.4 | 7.5 | 0.00 |
| 50-54 | 10.4 | 11.0 | -0.02 | 10.5 | 10.5 | 0.00 |
| 55-59 | 13.1 | 13.4 | -0.01 | 13.2 | 12.9 | 0.01 |
| 60-64 | 13.8 | 14.4 | -0.02 | 13.9 | 14.1 | 0.00 |
| 65-69 | 13.7 | 14.2 | -0.01 | 13.8 | 13.7 | 0.00 |
| 70-74 | 13.1 | 13.3 | -0.01 | 13.1 | 13.9 | -0.02 |
| 75-79 | 11.2 | 9.8 | 0.05 | 10.9 | 11.0 | 0.00 |
| 80-84 | 3.9 | 3.9 | 0.00 | 3.9 | 3.7 | 0.01 |
| Gender: female | 79.7 | 74.1 | 0.13 | 78.3 | 78.4 | 0.00 |
| Race | | | | | | |
| race = Asian | 1.4 | 1.5 | -0.02 | 1.4 | 1.3 | 0.00 |
| race = White | 70.9 | 71.7 | -0.02 | 71.1 | 71.3 | 0.00 |
| race = African American | 8.0 | 7.8 | 0.01 | 8.0 | 7.7 | 0.01 |
| Ethnicity | | | | | | |
| ethnicity = Hispanic or Latino | 1.3 | 1.8 | -0.04 | 1.4 | 1.5 | -0.01 |
| ethnicity = Not Hispanic or Latino | 80.3 | 81.0 | -0.02 | 80.5 | 80.3 | 0.00 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 13.5 | 14.2 | -0.02 | 13.7 | 13.8 | 0.00 |
| Attention deficit hyperactivity disorder | 0.6 | 0.4 | 0.02 | 0.6 | 0.5 | 0.01 |
| Chronic liver disease | 1.5 | 1.5 | 0.00 | 1.5 | 1.4 | 0.01 |
| Chronic obstructive lung disease | 7.0 | 7.2 | -0.01 | 7.1 | 6.9 | 0.01 |
| Crohn's disease | 0.4 | 1.1 | -0.08 | 0.5 | 0.6 | -0.02 |
| Dementia | 0.6 | 0.5 | 0.02 | 0.6 | 0.6 | 0.00 |
| Diabetes mellitus | 13.2 | 13.2 | 0.00 | 13.2 | 13.7 | -0.02 |
| Gastroesophageal reflux disease | 15.9 | 14.6 | 0.04 | 15.6 | 15.7 | 0.00 |
| Gastrointestinal hemorrhage | 1.2 | 1.2 | 0.00 | 1.2 | 1.2 | 0.00 |
| Human immunodeficiency virus infection | 0.1 | 0.1 | 0.00 | 0.1 | 0.1 | 0.00 |
| Hyperlipidemia | 29.0 | 28.1 | 0.02 | 28.8 | 29.1 | -0.01 |
| Hypertensive disorder | 38.0 | 37.1 | 0.02 | 37.8 | 38.2 | -0.01 |
| Lesion of liver | 0.9 | 0.8 | 0.01 | 0.9 | 0.8 | 0.01 |
| Obesity | 8.9 | 8.9 | 0.00 | 8.9 | 9.0 | 0.00 |
| Osteoarthritis | 25.5 | 27.1 | -0.04 | 25.8 | 25.2 | 0.01 |
| Pneumonia | 3.1 | 3.4 | -0.01 | 3.2 | 3.1 | 0.01 |
| Psoriasis | 1.5 | 3.2 | -0.11 | 1.7 | 2.0 | -0.02 |
| Renal impairment | 5.3 | 4.8 | 0.02 | 5.2 | 5.3 | -0.01 |
| Rheumatoid arthritis | 84.0 | 82.2 | 0.05 | 83.6 | 84.4 | -0.02 |
| Ulcerative colitis | 0.3 | 1.2 | -0.10 | 0.4 | 0.6 | -0.03 |
| Urinary tract infectious disease | 6.0 | 5.2 | 0.04 | 5.8 | 5.5 | 0.01 |
| Viral hepatitis C | 1.0 | 1.0 | 0.00 | 1.0 | 0.9 | 0.01 |
| Visual system disorder | 8.6 | 8.8 | 0.00 | 8.6 | 8.5 | 0.00 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 3.3 | 3.1 | 0.01 | 3.2 | 3.2 | 0.00 |
| Cerebrovascular disease | 3.1 | 2.8 | 0.02 | 3.1 | 3.1 | 0.00 |
| Coronary arteriosclerosis | 5.7 | 5.6 | 0.00 | 5.7 | 5.6 | 0.00 |
| Heart disease | 15.9 | 14.6 | 0.04 | 15.6 | 15.6 | 0.00 |
| Heart failure | 2.6 | 2.3 | 0.02 | 2.6 | 2.4 | 0.01 |
| Ischemic heart disease | 1.7 | 1.6 | 0.01 | 1.7 | 1.5 | 0.02 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Pulmonary embolism | 0.8 | 0.7 | 0.01 | 0.8 | 0.7 | 0.01 |
| Venous thrombosis | 1.3 | 1.2 | 0.01 | 1.3 | 1.4 | -0.01 |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | 0.4 | 0.3 | 0.02 | 0.4 | 0.4 | 0.01 |
| Malignant lymphoma | 0.4 | 0.5 | -0.01 | 0.4 | 0.6 | -0.03 |
| Malignant neoplasm of anorectum | 0.1 | 0.1 | -0.01 | 0.1 | 0.1 | 0.00 |
| Malignant neoplastic disease | 6.9 | 6.6 | 0.01 | 6.8 | 7.0 | -0.01 |
| Malignant tumor of breast | 1.5 | 1.4 | 0.01 | 1.4 | 1.6 | -0.01 |
| Malignant tumor of colon | 0.3 | 0.3 | 0.00 | 0.3 | 0.3 | -0.01 |
| Malignant tumor of lung | 0.3 | 0.4 | -0.02 | 0.3 | 0.3 | -0.01 |
| Malignant tumor of urinary bladder | 0.2 | 0.3 | -0.01 | 0.2 | 0.2 | 0.00 |
| Primary malignant neoplasm of prostate | 0.4 | 0.3 | 0.00 | 0.4 | 0.3 | 0.01 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 33.2 | 33.6 | -0.01 | 33.3 | 33.6 | -0.01 |
| Antibacterials for systemic use | 24.7 | 25.3 | -0.01 | 24.9 | 24.5 | 0.01 |
| Antidepressants | 36.1 | 34.9 | 0.02 | 35.7 | 35.7 | 0.00 |
| Antiepileptics | 24.0 | 24.1 | 0.00 | 24.0 | 24.0 | 0.00 |
| Antiinflammatory and antirheumatic products | 42.8 | 44.4 | -0.03 | 43.1 | 43.4 | 0.00 |
| Antineoplastic agents | 35.9 | 41.4 | -0.11 | 37.3 | 37.8 | -0.01 |
| Antipsoriatics | 0.6 | 0.7 | 0.00 | 0.6 | 0.7 | 0.00 |
| Antithrombotic agents | 25.2 | 23.5 | 0.04 | 24.9 | 25.2 | -0.01 |
| Beta blocking agents | 25.2 | 25.1 | 0.00 | 25.2 | 25.8 | -0.02 |
| Calcium channel blockers | 17.5 | 17.7 | 0.00 | 17.5 | 17.7 | 0.00 |
| Diuretics | 30.6 | 30.0 | 0.01 | 30.5 | 31.2 | -0.01 |
| Drugs for obstructive airway diseases | 30.9 | 30.0 | 0.02 | 30.8 | 31.0 | 0.00 |
| Drugs used in diabetes | 14.2 | 14.3 | 0.00 | 14.3 | 14.8 | -0.01 |
| Immunosuppressants | 49.4 | 61.2 | -0.24 | 52.2 | 52.1 | 0.00 |
| Lipid modifying agents | 33.2 | 33.7 | -0.01 | 33.3 | 33.5 | 0.00 |
| Opioids | 28.4 | 30.7 | -0.05 | 28.9 | 28.8 | 0.00 |
| Psycholeptics | 26.3 | 25.6 | 0.02 | 26.1 | 26.1 | 0.00 |
| Psychostimulants, agents used for adhd and nootropics | 4.0 | 3.8 | 0.01 | 4.0 | 4.0 | 0.00 |

## S6.1.2. CCAE

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 20-24 | 1.9 | 1.9 | 0.00 | 1.8 | 2.0 | -0.01 |
| 25-29 | 2.6 | 2.6 | 0.00 | 2.5 | 2.7 | -0.01 |
| 30-34 | 4.5 | 4.6 | 0.00 | 4.5 | 4.4 | 0.00 |
| 40-44 | 9.8 | 9.5 | 0.01 | 9.7 | 9.5 | 0.01 |
| 45-49 | 13.7 | 12.9 | 0.02 | 13.6 | 13.4 | 0.00 |
| 50-54 | 18.2 | 18.1 | 0.00 | 18.2 | 18.0 | 0.01 |
| 55-59 | 20.6 | 21.0 | -0.01 | 20.8 | 20.8 | 0.00 |
| 60-64 | 19.0 | 19.8 | -0.02 | 19.4 | 19.8 | -0.01 |
| 65-69 | 1.8 | 1.7 | 0.00 | 1.8 | 1.6 | 0.01 |
| Gender: female | 82.0 | 74.3 | 0.19 | 80.1 | 79.7 | 0.01 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 35.5 | 34.4 | 0.02 | 35.1 | 34.8 | 0.01 |
| Chronic liver disease | 3.2 | 3.2 | 0.00 | 3.2 | 3.3 | 0.00 |
| Chronic obstructive lung disease | 4.2 | 4.5 | -0.01 | 4.3 | 4.5 | -0.01 |
| Crohn's disease | 0.6 | 1.8 | -0.12 | 0.7 | 1.1 | -0.04 |
| Dementia | 0.2 | 0.2 | 0.01 | 0.2 | 0.2 | 0.00 |
| Depressive disorder | 13.4 | 13.5 | 0.00 | 13.3 | 13.5 | 0.00 |
| Diabetes mellitus | 13.5 | 13.4 | 0.00 | 13.6 | 13.8 | -0.01 |
| Gastroesophageal reflux disease | 13.7 | 13.5 | 0.01 | 13.6 | 13.5 | 0.00 |
| Gastrointestinal hemorrhage | 2.9 | 3.4 | -0.03 | 3.0 | 3.2 | -0.01 |
| Human immunodeficiency virus infection | 0.1 | 0.2 | -0.01 | 0.1 | 0.1 | 0.00 |
| Hyperlipidemia | 31.5 | 30.5 | 0.02 | 31.2 | 31.4 | 0.00 |
| Hypertensive disorder | 34.7 | 34.9 | 0.00 | 34.8 | 35.0 | 0.00 |
| Lesion of liver | 0.9 | 0.8 | 0.01 | 0.9 | 0.8 | 0.00 |
| Obesity | 9.3 | 9.1 | 0.00 | 9.2 | 9.5 | -0.01 |
| Osteoarthritis | 43.4 | 44.4 | -0.02 | 43.5 | 44.2 | -0.01 |
| Pneumonia | 4.0 | 3.9 | 0.00 | 4.0 | 4.0 | 0.00 |
| Psoriasis | 3.0 | 8.9 | -0.25 | 3.8 | 5.2 | -0.07 |
| Renal impairment | 3.1 | 2.8 | 0.02 | 3.0 | 2.8 | 0.01 |
| Rheumatoid arthritis | 84.2 | 85.7 | -0.04 | 84.9 | 85.3 | -0.01 |
| Schizophrenia | 0.1 | 0.1 | -0.01 | 0.1 | 0.1 | -0.01 |
| Ulcerative colitis | 0.6 | 1.9 | -0.12 | 0.7 | 1.0 | -0.04 |
| Urinary tract infectious disease | 11.9 | 10.8 | 0.03 | 11.6 | 11.5 | 0.00 |
| Viral hepatitis C | 1.1 | 1.0 | 0.01 | 1.1 | 1.0 | 0.01 |
| Visual system disorder | 25.7 | 26.2 | -0.01 | 25.7 | 25.9 | 0.00 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 1.4 | 1.3 | 0.02 | 1.4 | 1.3 | 0.01 |
| Cerebrovascular disease | 2.8 | 2.6 | 0.01 | 2.8 | 2.9 | -0.01 |
| Heart disease | 15.7 | 15.0 | 0.02 | 15.5 | 15.4 | 0.00 |
| Heart failure | 1.9 | 2.0 | 0.00 | 1.9 | 2.0 | 0.00 |
| Ischemic heart disease | 2.9 | 3.1 | -0.01 | 3.0 | 3.1 | -0.01 |
| Peripheral vascular disease | 1.6 | 1.5 | 0.01 | 1.5 | 1.6 | -0.01 |
| Pulmonary embolism | 0.8 | 0.5 | 0.03 | 0.8 | 0.6 | 0.02 |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | 1.0 | 1.0 | 0.00 | 1.0 | 1.0 | 0.00 |
| Malignant lymphoma | 0.5 | 0.5 | 0.00 | 0.5 | 0.4 | 0.02 |
| Malignant neoplasm of anorectum | 0.1 | 0.1 | 0.00 | 0.1 | 0.1 | 0.00 |
| Malignant tumor of breast | 1.8 | 1.6 | 0.02 | 1.7 | 1.7 | 0.00 |
| Malignant tumor of colon | 0.2 | 0.2 | 0.00 | 0.2 | 0.2 | 0.00 |
| Malignant tumor of lung | 0.1 | 0.2 | -0.01 | 0.2 | 0.1 | 0.00 |
| Primary malignant neoplasm of prostate | 0.4 | 0.4 | -0.01 | 0.4 | 0.4 | 0.00 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 24.3 | 24.9 | -0.01 | 24.5 | 24.6 | 0.00 |
| Antibacterials for systemic use | 43.8 | 44.3 | -0.01 | 43.8 | 44.0 | 0.00 |
| Antidepressants | 36.4 | 36.5 | 0.00 | 36.3 | 36.5 | 0.00 |
| Antiepileptics | 20.3 | 21.0 | -0.02 | 20.4 | 20.2 | 0.00 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Antiinflammatory and antirheumatic products | 55.3 | 57.4 | -0.04 | 55.8 | 56.7 | -0.02 |
| Antineoplastic agents | 30.7 | 37.8 | -0.15 | 33.0 | 33.1 | 0.00 |
| Antipsoriatics | 0.7 | 1.2 | -0.06 | 0.7 | 1.0 | -0.03 |
| Antithrombotic agents | 7.4 | 7.3 | 0.01 | 7.4 | 7.3 | 0.00 |
| Beta blocking agents | 15.8 | 16.2 | -0.01 | 15.9 | 16.2 | -0.01 |
| Calcium channel blockers | 11.7 | 11.5 | 0.01 | 11.7 | 11.8 | 0.00 |
| Drugs for acid related disorders | 32.3 | 33.6 | -0.03 | 32.6 | 32.6 | 0.00 |
| Drugs for obstructive airway diseases | 29.7 | 29.3 | 0.01 | 29.5 | 29.5 | 0.00 |
| Drugs used in diabetes | 10.4 | 10.5 | 0.00 | 10.5 | 10.8 | -0.01 |
| Immunosuppressants | 39.6 | 53.0 | -0.27 | 43.4 | 43.6 | 0.00 |
| Lipid modifying agents | 22.6 | 23.5 | -0.02 | 22.8 | 23.2 | -0.01 |
| Opioids | 38.5 | 40.7 | -0.05 | 39.0 | 39.3 | -0.01 |
| Psycholeptics | 33.6 | 33.7 | 0.00 | 33.4 | 33.3 | 0.00 |
| Psychostimulants, agents used for adhd and nootropics | 5.9 | 5.6 | 0.01 | 5.8 | 5.7 | 0.01 |

## S6.1.3. CPRD

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 15-19 | 0.3 | 0.2 | 0.01 | 0.3 | 0.2 | 0.00 |
| 20-24 | 0.8 | 1.0 | -0.02 | 0.9 | 0.9 | -0.01 |
| 25-29 | 1.2 | 1.7 | -0.04 | 1.4 | 1.6 | -0.02 |
| 30-34 | 2.7 | 3.1 | -0.02 | 3.0 | 3.0 | 0.00 |
| 35-39 | 4.6 | 4.6 | 0.00 | 4.7 | 4.6 | 0.01 |
| 40-44 | 5.6 | 6.6 | -0.04 | 6.2 | 6.4 | 0.00 |
| 45-49 | 8.9 | 8.1 | 0.03 | 8.6 | 8.5 | 0.00 |
| 50-54 | 11.4 | 10.8 | 0.02 | 11.2 | 10.9 | 0.01 |
| 55-59 | 13.2 | 12.6 | 0.02 | 13.4 | 12.8 | 0.02 |
| 60-64 | 13.1 | 13.2 | 0.00 | 12.8 | 13.0 | -0.01 |
| 65-69 | 12.6 | 12.7 | 0.00 | 12.6 | 12.7 | 0.00 |
| 70-74 | 10.8 | 11.6 | -0.02 | 11.2 | 11.2 | 0.00 |
| 80-84 | 4.5 | 4.3 | 0.01 | 4.2 | 4.4 | -0.01 |
| 85-89 | 1.6 | 1.3 | 0.03 | 1.3 | 1.4 | -0.01 |
| 90-94 | 0.3 | 0.2 | 0.03 | 0.3 | 0.2 | 0.03 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 9.2 | 9.1 | 0.00 | 9.4 | 9.3 | 0.01 |
| Chronic obstructive lung disease | 2.3 | 2.0 | 0.02 | 2.2 | 2.0 | 0.01 |
| Crohn's disease | <0.1 | 0.1 | -0.03 | 0.1 | 0.1 | -0.01 |
| Depressive disorder | 2.7 | 3.2 | -0.03 | 3.0 | 3.1 | 0.00 |
| Diabetes mellitus | 2.2 | 2.1 | 0.01 | 2.1 | 2.2 | -0.01 |
| Gastroesophageal reflux disease | 0.5 | 0.4 | 0.02 | 0.4 | 0.4 | 0.00 |
| Gastrointestinal hemorrhage | 1.0 | 1.4 | -0.04 | 1.2 | 1.4 | -0.02 |
| Hyperlipidemia | 1.2 | 1.0 | 0.02 | 1.2 | 1.0 | 0.01 |
| Hypertensive disorder | 3.0 | 3.9 | -0.05 | 3.2 | 3.6 | -0.02 |
| Lesion of liver | 0.1 | 0.1 | 0.01 | 0.1 | 0.1 | 0.01 |
| Obesity | 0.4 | 0.5 | -0.01 | 0.4 | 0.5 | -0.01 |
| Osteoarthritis | 7.6 | 10.4 | -0.10 | 8.6 | 8.9 | -0.01 |
| Pneumonia | 0.8 | 0.6 | 0.03 | 0.9 | 0.6 | 0.03 |
| Psoriasis | 0.7 | 1.9 | -0.10 | 1.2 | 1.5 | -0.03 |
| Renal impairment | 2.3 | 1.8 | 0.03 | 1.9 | 2.2 | -0.02 |
| Rheumatoid arthritis | 61.3 | 72.3 | -0.24 | 67.4 | 66.3 | 0.02 |
| Visual system disorder | 7.0 | 6.9 | 0.00 | 6.7 | 6.9 | -0.01 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 0.7 | 0.7 | 0.00 | 0.8 | 0.7 | 0.02 |
| Cerebrovascular disease | 0.4 | 0.8 | -0.05 | 0.5 | 0.7 | -0.03 |
| Coronary arteriosclerosis | 0.1 | 0.1 | 0.00 | 0.1 | 0.1 | 0.00 |
| Heart disease | 3.0 | 3.4 | -0.02 | 3.4 | 3.1 | 0.01 |
| Heart failure | 0.5 | 0.7 | -0.02 | 0.7 | 0.6 | 0.01 |
| Ischemic heart disease | 1.0 | 1.5 | -0.04 | 1.2 | 1.3 | -0.01 |
| Peripheral vascular disease | 0.2 | 0.2 | 0.01 | 0.3 | 0.2 | 0.02 |
| Pulmonary embolism | 0.2 | 0.2 | -0.01 | 0.2 | 0.2 | -0.02 |
| Venous thrombosis | 0.8 | 1.0 | -0.01 | 0.9 | 1.0 | 0.00 |
| Medical history: Neoplasms | | | | | | |
| Malignant neoplastic disease | 1.3 | 1.0 | 0.02 | 1.1 | 1.0 | 0.01 |
| Malignant tumor of breast | 0.1 | 0.1 | 0.00 | 0.1 | 0.1 | -0.01 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 22.0 | 16.8 | 0.13 | 19.4 | 19.4 | 0.00 |
| Antibacterials for systemic use | 37.3 | 35.0 | 0.05 | 35.7 | 36.2 | -0.01 |
| Antidepressants | 26.6 | 22.6 | 0.09 | 25.0 | 24.9 | 0.00 |
| Antiepileptics | 6.5 | 4.3 | 0.10 | 5.4 | 5.2 | 0.01 |
| Antiinflammatory and antirheumatic products | 60.5 | 67.7 | -0.15 | 64.3 | 63.8 | 0.01 |
| Antineoplastic agents | 51.4 | 28.6 | 0.48 | 39.3 | 40.8 | -0.03 |
| Antipsoriatics | 0.7 | 1.3 | -0.06 | 0.9 | 1.2 | -0.02 |
| Antithrombotic agents | 17.9 | 16.7 | 0.03 | 17.3 | 17.2 | 0.00 |
| Beta blocking agents | 14.4 | 13.5 | 0.03 | 14.4 | 13.9 | 0.02 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Calcium channel blockers | 15.5 | 12.1 | 0.10 | 13.4 | 13.6 | 0.00 |
| Diuretics | 19.0 | 20.9 | -0.05 | 20.0 | 20.1 | 0.00 |
| Drugs for acid related disorders | 58.3 | 51.0 | 0.15 | 54.1 | 54.6 | -0.01 |
| Drugs used in diabetes | 7.1 | 5.8 | 0.05 | 6.2 | 6.6 | -0.02 |
| Immunosuppressants | 55.2 | 30.0 | 0.53 | 42.2 | 43.0 | -0.02 |
| Lipid modifying agents | 23.0 | 17.1 | 0.15 | 19.5 | 19.8 | -0.01 |
| Opioids | 36.3 | 41.1 | -0.10 | 39.0 | 38.9 | 0.00 |
| Psycholeptics | 16.5 | 16.4 | 0.00 | 16.7 | 16.5 | 0.00 |
| Psychostimulants, agents used for adhd and nootropics | 0.1 | 0.1 | 0.01 | 0.1 | 0.1 | 0.01 |

## S6.1.4. Clinformatics

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 15-19 | 0.3 | 0.4 | -0.01 | 0.3 | 0.4 | -0.02 |
| 20-24 | 1.1 | 1.1 | -0.01 | 1.1 | 1.1 | -0.01 |
| 25-29 | 1.8 | 2.0 | -0.01 | 1.8 | 1.8 | 0.00 |
| 30-34 | 3.4 | 3.2 | 0.01 | 3.3 | 3.3 | 0.00 |
| 35-39 | 4.9 | 5.2 | -0.02 | 4.9 | 4.8 | 0.00 |
| 40-44 | 6.8 | 6.7 | 0.01 | 6.8 | 6.5 | 0.01 |
| 45-49 | 8.9 | 9.1 | 0.00 | 8.9 | 8.9 | 0.00 |
| 50-54 | 11.6 | 11.6 | 0.00 | 11.6 | 11.7 | 0.00 |
| 55-59 | 12.5 | 13.3 | -0.02 | 12.7 | 12.8 | 0.00 |
| 60-64 | 11.6 | 12.6 | -0.03 | 11.9 | 11.9 | 0.00 |
| 65-69 | 11.3 | 12.2 | -0.03 | 11.6 | 11.7 | 0.00 |
| 70-74 | 10.8 | 10.6 | 0.01 | 10.9 | 10.6 | 0.01 |
| 75-79 | 7.9 | 6.9 | 0.04 | 7.7 | 7.7 | 0.00 |
| 80-84 | 5.0 | 3.8 | 0.06 | 4.7 | 4.9 | -0.01 |
| 85-89 | 1.9 | 1.3 | 0.05 | 1.8 | 1.7 | 0.01 |
| Gender: female | 79.6 | 71.9 | 0.18 | 77.6 | 77.6 | 0.00 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 34.7 | 33.2 | 0.03 | 34.2 | 34.2 | 0.00 |
| Attention deficit hyperactivity disorder | 1.2 | 1.1 | 0.00 | 1.2 | 1.1 | 0.00 |
| Chronic liver disease | 3.7 | 3.8 | -0.01 | 3.7 | 3.9 | -0.01 |
| Chronic obstructive lung disease | 11.2 | 10.9 | 0.01 | 11.1 | 11.2 | 0.00 |
| Crohn's disease | 0.7 | 2.4 | -0.14 | 0.9 | 1.4 | -0.05 |
| Dementia | 1.3 | 1.2 | 0.01 | 1.2 | 1.5 | -0.02 |
| Depressive disorder | 18.5 | 18.1 | 0.01 | 18.4 | 18.2 | 0.00 |
| Diabetes mellitus | 20.9 | 20.2 | 0.02 | 20.7 | 21.1 | -0.01 |
| Gastroesophageal reflux disease | 21.6 | 21.1 | 0.01 | 21.5 | 21.8 | -0.01 |
| Gastrointestinal hemorrhage | 4.0 | 4.5 | -0.02 | 4.0 | 4.1 | 0.00 |
| Human immunodeficiency virus infection | 0.2 | 0.2 | -0.01 | 0.2 | 0.2 | -0.01 |
| Hyperlipidemia | 46.8 | 45.3 | 0.03 | 46.4 | 47.1 | -0.01 |
| Hypertensive disorder | 51.4 | 51.0 | 0.01 | 51.2 | 51.9 | -0.01 |
| Lesion of liver | 1.3 | 1.2 | 0.00 | 1.3 | 1.3 | 0.00 |
| Obesity | 12.2 | 12.5 | -0.01 | 12.2 | 12.2 | 0.00 |
| Osteoarthritis | 56.4 | 55.4 | 0.02 | 56.1 | 56.7 | -0.01 |
| Pneumonia | 6.5 | 5.8 | 0.03 | 6.3 | 6.4 | 0.00 |
| Psoriasis | 3.2 | 8.0 | -0.21 | 3.9 | 4.9 | -0.05 |
| Renal impairment | 9.9 | 9.2 | 0.03 | 9.7 | 9.9 | 0.00 |
| Rheumatoid arthritis | 84.3 | 85.5 | -0.04 | 84.8 | 85.2 | -0.01 |
| Schizophrenia | 0.2 | 0.1 | 0.01 | 0.2 | 0.1 | 0.01 |
| Ulcerative colitis | 0.7 | 2.2 | -0.13 | 0.9 | 1.3 | -0.04 |
| Viral hepatitis C | 1.5 | 1.7 | -0.02 | 1.5 | 1.7 | -0.02 |
| Visual system disorder | 40.3 | 39.7 | 0.01 | 40.0 | 39.8 | 0.00 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 5.1 | 4.1 | 0.04 | 4.8 | 4.8 | 0.00 |
| Cerebrovascular disease | 6.3 | 5.5 | 0.03 | 6.1 | 6.0 | 0.00 |
| Coronary arteriosclerosis | 10.8 | 10.5 | 0.01 | 10.7 | 11.0 | -0.01 |
| Heart disease | 27.8 | 26.1 | 0.04 | 27.3 | 27.9 | -0.01 |
| Heart failure | 6.3 | 5.8 | 0.02 | 6.1 | 6.4 | -0.01 |
| Ischemic heart disease | 6.5 | 6.4 | 0.01 | 6.5 | 6.6 | -0.01 |
| Peripheral vascular disease | 4.7 | 4.3 | 0.02 | 4.7 | 4.6 | 0.00 |
| Pulmonary embolism | 1.2 | 0.9 | 0.03 | 1.2 | 1.1 | 0.01 |
| Venous thrombosis | 2.3 | 2.1 | 0.02 | 2.2 | 2.4 | -0.01 |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | 1.4 | 1.2 | 0.02 | 1.4 | 1.3 | 0.01 |
| Malignant lymphoma | 0.7 | 0.8 | -0.01 | 0.7 | 0.8 | -0.01 |
| Malignant neoplasm of anorectum | 0.2 | 0.3 | -0.02 | 0.2 | 0.2 | -0.02 |
| Malignant neoplastic disease | 10.4 | 10.4 | 0.00 | 10.4 | 10.6 | -0.01 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Malignant tumor of breast | 2.5 | 2.0 | 0.04 | 2.4 | 2.4 | 0.00 |
| Malignant tumor of colon | 0.4 | 0.5 | -0.01 | 0.4 | 0.5 | -0.01 |
| Malignant tumor of lung | 0.4 | 0.4 | 0.01 | 0.4 | 0.4 | 0.01 |
| Malignant tumor of urinary bladder | 0.3 | 0.4 | -0.01 | 0.3 | 0.3 | 0.00 |
| Primary malignant neoplasm of prostate | 1.0 | 1.2 | -0.02 | 1.0 | 1.0 | 0.00 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 32.3 | 32.6 | -0.01 | 32.4 | 32.7 | -0.01 |
| Antibacterials for systemic use | 41.2 | 41.9 | -0.01 | 41.3 | 41.1 | 0.00 |
| Antidepressants | 35.1 | 35.2 | 0.00 | 35.0 | 34.9 | 0.00 |
| Antiinflammatory and antirheumatic products | 47.9 | 50.1 | -0.04 | 48.5 | 49.0 | -0.01 |
| Antineoplastic agents | 29.8 | 38.5 | -0.18 | 32.6 | 32.2 | 0.01 |
| Antipsoriatics | 0.9 | 1.1 | -0.03 | 0.9 | 0.9 | 0.00 |
| Antithrombotic agents | 11.8 | 10.6 | 0.04 | 11.5 | 11.4 | 0.00 |
| Beta blocking agents | 23.2 | 22.4 | 0.02 | 23.1 | 23.2 | 0.00 |
| Calcium channel blockers | 17.8 | 16.6 | 0.03 | 17.6 | 17.8 | 0.00 |
| Diuretics | 30.3 | 29.0 | 0.03 | 30.0 | 30.7 | -0.02 |
| Drugs for acid related disorders | 33.7 | 34.4 | -0.02 | 33.8 | 34.4 | -0.01 |
| Drugs for obstructive airway diseases | 29.4 | 28.9 | 0.01 | 29.2 | 29.5 | 0.00 |
| Drugs used in diabetes | 14.1 | 14.1 | 0.00 | 14.1 | 14.5 | -0.01 |
| Immunosuppressants | 38.7 | 53.1 | -0.29 | 43.0 | 42.2 | 0.02 |
| Lipid modifying agents | 31.9 | 32.1 | 0.00 | 32.0 | 32.6 | -0.01 |
| Opioids | 38.4 | 40.2 | -0.04 | 38.8 | 38.9 | 0.00 |
| Psycholeptics | 30.4 | 29.3 | 0.02 | 30.1 | 29.9 | 0.00 |
| Psychostimulants, agents used for adhd and nootropics | 4.0 | 3.7 | 0.02 | 4.0 | 3.7 | 0.01 |

## S6.1.5. DAGermany

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 15-19 | 0.3 | 0.5 | -0.03 | 0.3 | 0.5 | -0.03 |
| 20-24 | 1.1 | 1.3 | -0.02 | 1.1 | 1.2 | -0.01 |
| 25-29 | 1.9 | 2.4 | -0.04 | 2.0 | 2.4 | -0.03 |
| 30-34 | 2.4 | 3.5 | -0.07 | 2.9 | 3.0 | -0.01 |
| 35-39 | 4.0 | 4.1 | -0.01 | 3.9 | 4.1 | -0.01 |
| 40-44 | 5.8 | 6.6 | -0.03 | 6.1 | 6.3 | -0.01 |
| 50-54 | 12.0 | 12.7 | -0.02 | 12.7 | 12.5 | 0.01 |
| 55-59 | 14.2 | 14.8 | -0.02 | 14.8 | 14.9 | 0.00 |
| 60-64 | 13.2 | 12.1 | 0.03 | 12.3 | 12.4 | 0.00 |
| 65-69 | 11.4 | 10.6 | 0.03 | 11.2 | 10.6 | 0.02 |
| 70-74 | 10.2 | 9.5 | 0.02 | 9.8 | 9.7 | 0.00 |
| 75-79 | 9.1 | 7.5 | 0.06 | 8.2 | 8.1 | 0.01 |
| 80-84 | 4.4 | 3.9 | 0.02 | 4.2 | 4.0 | 0.01 |
| 85-89 | 1.4 | 1.0 | 0.04 | 1.2 | 1.0 | 0.02 |
| 90-94 | 0.2 | 0.2 | 0.00 | 0.2 | 0.2 | 0.00 |
| Gender: female | 81.4 | 72.5 | 0.21 | 76.0 | 77.2 | -0.03 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 11.9 | 12.6 | -0.02 | 12.2 | 12.0 | 0.01 |
| Attention deficit hyperactivity disorder | <0.1 | 0.1 | -0.01 | <0.1 | <0.1 | 0.02 |
| Chronic liver disease | 0.6 | 0.3 | 0.05 | 0.6 | 0.3 | 0.05 |
| Chronic obstructive lung disease | 3.4 | 4.0 | -0.03 | 3.4 | 3.7 | -0.02 |
| Crohn's disease | 0.2 | 1.5 | -0.14 | 0.5 | 1.0 | -0.06 |
| Dementia | 0.6 | 0.5 | 0.01 | 0.6 | 0.5 | 0.01 |
| Depressive disorder | 8.3 | 8.3 | 0.00 | 8.2 | 8.0 | 0.01 |
| Diabetes mellitus | 6.9 | 7.6 | -0.03 | 7.3 | 7.1 | 0.01 |
| Gastroesophageal reflux disease | 1.9 | 2.0 | -0.01 | 1.9 | 2.0 | 0.00 |
| Gastrointestinal hemorrhage | 0.4 | 0.6 | -0.03 | 0.5 | 0.6 | -0.02 |
| Hyperlipidemia | 7.1 | 8.4 | -0.05 | 8.0 | 7.7 | 0.01 |
| Hypertensive disorder | 18.5 | 19.2 | -0.02 | 19.0 | 18.3 | 0.02 |
| Lesion of liver | 0.5 | 0.3 | 0.03 | 0.4 | 0.3 | 0.02 |
| Obesity | 2.2 | 2.4 | -0.01 | 2.2 | 2.2 | 0.00 |
| Osteoarthritis | 11.4 | 13.2 | -0.06 | 12.4 | 12.1 | 0.01 |
| Pneumonia | 1.9 | 1.5 | 0.03 | 2.0 | 1.6 | 0.04 |
| Psoriasis | 2.3 | 4.4 | -0.12 | 3.7 | 3.5 | 0.01 |
| Renal impairment | 2.6 | 2.3 | 0.02 | 2.4 | 2.4 | 0.00 |
| Rheumatoid arthritis | 46.4 | 54.7 | -0.17 | 52.4 | 50.1 | 0.04 |
| Schizophrenia | <0.1 | 0.1 | -0.03 | <0.1 | 0.1 | -0.01 |
| Ulcerative colitis | 0.2 | 1.6 | -0.16 | 0.4 | 1.1 | -0.08 |
| Urinary tract infectious disease | 4.0 | 4.1 | -0.01 | 4.0 | 3.9 | 0.00 |
| Viral hepatitis C | 0.3 | 0.1 | 0.04 | 0.3 | 0.1 | 0.04 |
| Visual system disorder | 5.8 | 5.6 | 0.01 | 5.6 | 5.5 | 0.01 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 0.8 | 0.8 | 0.00 | 0.8 | 0.7 | 0.00 |
| Cerebrovascular disease | 1.4 | 1.8 | -0.03 | 1.4 | 1.6 | -0.02 |
| Coronary arteriosclerosis | 1.0 | 1.1 | -0.01 | 1.1 | 1.1 | 0.00 |
| Heart disease | 10.5 | 11.4 | -0.03 | 10.6 | 10.6 | 0.00 |
| Heart failure | 2.1 | 2.6 | -0.04 | 2.0 | 2.4 | -0.03 |
| Ischemic heart disease | 4.3 | 5.2 | -0.04 | 4.7 | 4.6 | 0.00 |
| Peripheral vascular disease | 1.0 | 1.0 | 0.00 | 0.9 | 0.9 | 0.00 |
| Pulmonary embolism | 0.6 | 0.3 | 0.04 | 0.6 | 0.4 | 0.03 |
| Venous thrombosis | 1.3 | 1.4 | -0.02 | 1.5 | 1.5 | 0.00 |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | 0.3 | 0.2 | 0.03 | 0.3 | 0.2 | 0.02 |
| Malignant lymphoma | 0.2 | 0.2 | 0.01 | 0.2 | 0.1 | 0.01 |
| Malignant neoplasm of anorectum | 0.2 | 0.2 | 0.01 | 0.1 | 0.1 | 0.00 |
| Malignant neoplastic disease | 3.4 | 3.2 | 0.01 | 3.2 | 3.2 | 0.00 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Malignant tumor of breast | 0.7 | 0.6 | 0.01 | 0.6 | 0.6 | 0.00 |
| Malignant tumor of colon | 0.3 | 0.1 | 0.03 | 0.3 | 0.1 | 0.04 |
| Malignant tumor of lung | <0.1 | <0.1 | 0.02 | <0.1 | <0.1 | 0.00 |
| Malignant tumor of urinary bladder | <0.1 | 0.2 | -0.05 | <0.1 | 0.2 | -0.05 |
| Primary malignant neoplasm of prostate | 0.2 | 0.3 | -0.03 | 0.2 | 0.2 | -0.02 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 16.7 | 17.1 | -0.01 | 16.8 | 16.5 | 0.01 |
| Antibacterials for systemic use | 12.7 | 14.7 | -0.06 | 13.5 | 13.7 | 0.00 |
| Antiepileptics | 3.0 | 2.3 | 0.04 | 2.6 | 2.2 | 0.02 |
| Antiinflammatory and antirheumatic products | 33.3 | 36.1 | -0.06 | 35.4 | 34.7 | 0.01 |
| Antineoplastic agents | 31.8 | 26.8 | 0.11 | 29.4 | 30.4 | -0.02 |
| Antipsoriatics | 0.2 | 0.3 | -0.01 | 0.2 | 0.2 | 0.00 |
| Antithrombotic agents | 10.1 | 9.9 | 0.01 | 9.6 | 9.4 | 0.01 |
| Beta blocking agents | 13.7 | 13.3 | 0.01 | 13.0 | 13.1 | 0.00 |
| Calcium channel blockers | 7.6 | 7.7 | 0.00 | 7.6 | 7.3 | 0.01 |
| Diuretics | 13.9 | 14.6 | -0.02 | 14.5 | 13.7 | 0.02 |
| Drugs for acid related disorders | 32.1 | 32.7 | -0.01 | 32.3 | 32.5 | 0.00 |
| Drugs for obstructive airway diseases | 7.0 | 7.7 | -0.03 | 7.4 | 7.2 | 0.01 |
| Drugs used in diabetes | 4.4 | 4.8 | -0.02 | 4.7 | 4.5 | 0.01 |
| Immunosuppressants | 40.7 | 35.0 | 0.12 | 38.9 | 38.5 | 0.01 |
| Lipid modifying agents | 7.3 | 9.2 | -0.07 | 8.2 | 8.2 | 0.00 |
| Opioids | 12.5 | 12.9 | -0.01 | 12.2 | 12.3 | 0.00 |
| Psycholeptics | 4.8 | 6.0 | -0.05 | 4.8 | 5.3 | -0.02 |
| Psychostimulants, agents used for adhd and nootropics | 0.2 | 0.4 | -0.03 | 0.2 | 0.3 | -0.03 |

## S6.1.6. IMRD

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 15-19 | 0.2 | 0.2 | 0.02 | 0.2 | 0.2 | 0.01 |
| 20-24 | 0.8 | 1.0 | -0.03 | 0.8 | 1.0 | -0.02 |
| 25-29 | 1.2 | 1.6 | -0.03 | 1.4 | 1.6 | -0.01 |
| 30-34 | 2.8 | 3.2 | -0.02 | 2.9 | 3.1 | -0.01 |
| 35-39 | 4.8 | 5.0 | -0.01 | 5.0 | 4.8 | 0.01 |
| 40-44 | 6.0 | 6.1 | 0.00 | 6.3 | 6.0 | 0.01 |
| 45-49 | 8.7 | 7.8 | 0.03 | 8.4 | 8.5 | 0.00 |
| 50-54 | 11.3 | 10.8 | 0.02 | 11.2 | 11.0 | 0.01 |
| 55-59 | 13.0 | 12.4 | 0.02 | 12.7 | 12.4 | 0.01 |
| 60-64 | 13.2 | 13.8 | -0.02 | 13.5 | 13.5 | 0.00 |
| 65-69 | 13.0 | 12.8 | 0.01 | 12.9 | 13.0 | 0.00 |
| 70-74 | 11.0 | 11.4 | -0.01 | 11.2 | 11.2 | 0.00 |
| 75-79 | 7.7 | 8.3 | -0.02 | 7.8 | 8.0 | 0.00 |
| 80-84 | 4.4 | 4.1 | 0.02 | 4.1 | 4.2 | 0.00 |
| 85-89 | 1.5 | 1.3 | 0.02 | 1.3 | 1.4 | -0.01 |
| 90-94 | 0.3 | 0.2 | 0.02 | 0.2 | 0.2 | 0.00 |
| Gender: female | 73.2 | 68.0 | 0.11 | 70.7 | 71.0 | 0.00 |
| Race | | | | | | |
| race = Asian | 0.1 | 0.1 | 0.02 | 0.1 | 0.1 | 0.00 |
| race = White | 29.8 | 25.8 | 0.09 | 27.4 | 27.6 | 0.00 |
| race = Asian Indian | 0.7 | 0.4 | 0.04 | 0.6 | 0.5 | 0.02 |
| race = Bangladeshi | 0.1 | <0.1 | 0.02 | <0.1 | <0.1 | 0.02 |
| race = Chinese | 0.1 | <0.1 | 0.03 | 0.1 | <0.1 | 0.03 |
| race = Pakistani | 0.3 | 0.2 | 0.03 | 0.3 | 0.2 | 0.03 |
| race = Black | 0.4 | 0.2 | 0.03 | 0.3 | 0.2 | 0.02 |
| race = African | 0.2 | <0.1 | 0.05 | 0.2 | <0.1 | 0.04 |
| race = European | 0.1 | <0.1 | 0.02 | 0.1 | <0.1 | 0.02 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 9.2 | 9.3 | 0.00 | 9.2 | 9.1 | 0.00 |
| Chronic liver disease | 0.1 | 0.1 | 0.00 | <0.1 | <0.1 | 0.00 |
| Chronic obstructive lung disease | 2.1 | 2.5 | -0.02 | 2.2 | 2.3 | -0.01 |
| Crohn's disease | <0.1 | 0.2 | -0.05 | <0.1 | 0.1 | -0.04 |
| Dementia | 0.2 | 0.1 | 0.03 | 0.1 | 0.1 | 0.02 |
| Depressive disorder | 2.6 | 2.9 | -0.02 | 2.9 | 2.7 | 0.01 |
| Diabetes mellitus | 2.3 | 2.2 | 0.01 | 2.2 | 2.1 | 0.01 |
| Gastroesophageal reflux disease | 0.3 | 0.6 | -0.03 | 0.4 | 0.6 | -0.03 |
| Gastrointestinal hemorrhage | 0.9 | 1.3 | -0.04 | 1.0 | 1.1 | -0.01 |
| Hyperlipidemia | 1.1 | 1.3 | -0.02 | 1.1 | 1.2 | 0.00 |
| Hypertensive disorder | 3.1 | 3.7 | -0.03 | 3.2 | 3.3 | 0.00 |
| Lesion of liver | 0.1 | 0.1 | 0.01 | 0.1 | <0.1 | 0.01 |
| Obesity | 0.3 | 0.5 | -0.03 | 0.4 | 0.6 | -0.03 |
| Osteoarthritis | 7.5 | 9.4 | -0.07 | 8.1 | 8.2 | 0.00 |
| Pneumonia | 0.7 | 0.6 | 0.00 | 0.7 | 0.7 | 0.00 |
| Psoriasis | 0.8 | 2.2 | -0.12 | 1.3 | 1.6 | -0.02 |
| Rheumatoid arthritis | 61.4 | 69.3 | -0.17 | 65.6 | 63.7 | 0.04 |
| Schizophrenia | <0.1 | <0.1 | 0.01 | <0.1 | <0.1 | 0.02 |
| Ulcerative colitis | <0.1 | <0.1 | -0.01 | <0.1 | <0.1 | -0.01 |
| Urinary tract infectious disease | 3.1 | 2.9 | 0.01 | 3.1 | 3.0 | 0.01 |
| Visual system disorder | 6.6 | 7.0 | -0.02 | 6.6 | 6.8 | 0.00 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 0.7 | 0.7 | 0.00 | 0.7 | 0.6 | 0.01 |
| Cerebrovascular disease | 0.5 | 0.7 | -0.03 | 0.5 | 0.7 | -0.02 |
| Coronary arteriosclerosis | 0.1 | 0.1 | 0.01 | 0.1 | 0.1 | 0.02 |
| Heart disease | 2.7 | 2.9 | -0.01 | 2.8 | 2.6 | 0.01 |
| Heart failure | 0.4 | 0.4 | -0.01 | 0.4 | 0.4 | 0.01 |
| Ischemic heart disease | 0.8 | 1.2 | -0.04 | 1.0 | 1.0 | 0.00 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Peripheral vascular disease | 0.2 | 0.2 | 0.01 | 0.3 | 0.2 | 0.02 |
| Pulmonary embolism | 0.2 | 0.2 | -0.01 | 0.2 | 0.3 | -0.02 |
| Venous thrombosis | 0.8 | 1.1 | -0.03 | 0.8 | 1.1 | -0.02 |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | 0.1 | 0.1 | 0.01 | 0.1 | <0.1 | 0.02 |
| Malignant neoplasm of anorectum | <0.1 | <0.1 | 0.02 | <0.1 | <0.1 | 0.02 |
| Malignant neoplastic disease | 1.3 | 1.1 | 0.02 | 1.2 | 1.0 | 0.02 |
| Malignant tumor of breast | 0.2 | 0.2 | 0.02 | 0.2 | 0.2 | 0.01 |
| Malignant tumor of colon | <0.1 | <0.1 | -0.01 | <0.1 | <0.1 | 0.00 |
| Malignant tumor of lung | 0.1 | 0.1 | 0.01 | 0.1 | 0.1 | 0.02 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 0.6 | 0.6 | 0.00 | 0.6 | 0.8 | -0.02 |
| Antibacterials for systemic use | 3.8 | 3.4 | 0.02 | 3.6 | 3.5 | 0.01 |
| Antidepressants | 1.1 | 1.1 | -0.01 | 1.0 | 1.2 | -0.02 |
| Antiepileptics | 0.1 | 0.2 | -0.03 | 0.1 | 0.2 | -0.03 |
| Antiinflammatory and antirheumatic products | 1.6 | 1.9 | -0.03 | 1.6 | 1.8 | -0.01 |
| Antineoplastic agents | 1.5 | 0.6 | 0.08 | 1.2 | 0.9 | 0.02 |
| Antithrombotic agents | 1.1 | 1.1 | 0.00 | 1.2 | 1.2 | 0.00 |
| Beta blocking agents | 0.4 | 0.6 | -0.02 | 0.5 | 0.6 | -0.01 |
| Calcium channel blockers | 0.6 | 0.5 | 0.00 | 0.6 | 0.5 | 0.02 |
| Diuretics | 0.8 | 1.0 | -0.02 | 1.0 | 0.9 | 0.01 |
| Drugs for acid related disorders | 1.6 | 1.7 | 0.00 | 1.7 | 1.7 | 0.01 |
| Drugs for obstructive airway diseases | 0.4 | 0.4 | 0.00 | 0.5 | 0.4 | 0.00 |
| Drugs used in diabetes | 0.2 | 0.2 | 0.01 | 0.2 | 0.2 | 0.00 |
| Immunosuppressants | 1.6 | 0.7 | 0.08 | 1.3 | 1.0 | 0.02 |
| Lipid modifying agents | 0.9 | 0.9 | 0.00 | 0.9 | 1.0 | -0.01 |
| Opioids | 0.6 | 0.6 | -0.01 | 0.6 | 0.6 | -0.01 |
| Psycholeptics | 0.4 | 0.5 | -0.01 | 0.4 | 0.4 | -0.01 |

## S6.1.7. IPCI

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 15-19 | 0.4 | <0.9 | 0.00 | 0.4 | <0.9 | 0.02 |
| 20-24 | 0.6 | 1.3 | -0.07 | 0.6 | 1.0 | -0.04 |
| 25-29 | 1.4 | 3.0 | -0.11 | 1.5 | 2.7 | -0.08 |
| 30-34 | 1.6 | 4.4 | -0.16 | 1.8 | 3.7 | -0.12 |
| 35-39 | 3.2 | 4.0 | -0.04 | 3.4 | 4.0 | -0.03 |
| 40-44 | 6.0 | 4.4 | 0.08 | 6.4 | 3.4 | 0.14 |
| 45-49 | 8.5 | 10.4 | -0.06 | 9.0 | 10.1 | -0.04 |
| 50-54 | 10.5 | 9.7 | 0.03 | 11.0 | 9.1 | 0.06 |
| 55-59 | 11.2 | 14.6 | -0.10 | 11.5 | 14.4 | -0.09 |
| 60-64 | 12.2 | 12.3 | 0.00 | 11.7 | 12.7 | -0.03 |
| 65-69 | 11.8 | 12.9 | -0.03 | 11.9 | 12.4 | -0.02 |
| 70-74 | 12.3 | 9.8 | 0.08 | 12.0 | 10.6 | 0.04 |
| 75-79 | 9.0 | 8.5 | 0.02 | 8.8 | 9.8 | -0.04 |
| 80-84 | 7.4 | 3.2 | 0.19 | 6.7 | 4.3 | 0.11 |
| 85-89 | 2.8 | 0.9 | 0.14 | 2.7 | 1.4 | 0.09 |
| 90-94 | 0.8 | <0.9 | 0.09 | 0.8 | <0.9 | 0.08 |
| Gender: female | 68.4 | 68.0 | 0.01 | 68.6 | 67.2 | 0.03 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 14.1 | 16.1 | -0.06 | 14.3 | 16.2 | -0.05 |
| Attention deficit hyperactivity disorder | <0.3 | <0.9 | -0.03 | <0.3 | <0.9 | -0.01 |
| Depressive disorder | 4.7 | 4.2 | 0.02 | 4.8 | 4.5 | 0.02 |
| Diabetes mellitus | 8.6 | 8.9 | -0.01 | 8.2 | 9.9 | -0.06 |
| Gastroesophageal reflux disease | 0.7 | <0.9 | 0.02 | 0.7 | <0.9 | 0.04 |
| Gastrointestinal hemorrhage | 1.1 | 1.9 | -0.07 | 1.0 | 1.8 | -0.07 |
| Hyperlipidemia | 3.4 | 4.0 | -0.03 | 3.4 | 4.3 | -0.05 |
| Hypertensive disorder | 16.3 | 17.6 | -0.04 | 15.6 | 17.6 | -0.06 |
| Obesity | 1.1 | 1.1 | 0.00 | 1.2 | 1.1 | 0.01 |
| Osteoarthritis | 9.7 | 6.4 | 0.12 | 9.4 | 6.7 | 0.10 |
| Pneumonia | 4.1 | 4.5 | -0.02 | 3.9 | 4.4 | -0.02 |
| Psoriasis | 1.1 | 2.8 | -0.12 | 1.2 | 2.5 | -0.09 |
| Renal impairment | 2.1 | 1.5 | 0.04 | 2.0 | 1.4 | 0.05 |
| Ulcerative colitis | <0.3 | 0.9 | -0.10 | <0.3 | 1.1 | -0.12 |
| Urinary tract infectious disease | 9.1 | 7.4 | 0.06 | 9.0 | 7.0 | 0.08 |
| Visual system disorder | 13.3 | 13.4 | 0.00 | 13.4 | 12.1 | 0.04 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 2.9 | 2.3 | 0.04 | 2.7 | 2.3 | 0.02 |
| Cerebrovascular disease | 2.6 | 3.0 | -0.03 | 2.4 | 3.4 | -0.06 |
| Coronary arteriosclerosis | 0.5 | <0.9 | 0.05 | 0.5 | <0.9 | 0.07 |
| Heart disease | 10.2 | 9.1 | 0.04 | 9.7 | 10.0 | -0.01 |
| Heart failure | 1.6 | 1.1 | 0.04 | 1.5 | 1.4 | 0.01 |
| Ischemic heart disease | 4.5 | 4.4 | 0.00 | 4.3 | 5.0 | -0.03 |
| Peripheral vascular disease | 3.6 | 4.4 | -0.04 | 3.7 | 4.6 | -0.05 |
| Pulmonary embolism | 0.4 | <0.9 | -0.02 | 0.4 | <0.9 | -0.01 |
| Venous thrombosis | 1.4 | 0.9 | 0.04 | 1.4 | <0.9 | 0.07 |
| Medical history: Neoplasms | | | | | | |
| Malignant lymphoma | <0.3 | <0.9 | -0.02 | <0.3 | <0.9 | 0.01 |
| Malignant neoplasm of anorectum | 0.5 | <0.9 | -0.04 | 0.4 | <0.9 | -0.04 |
| Malignant neoplastic disease | 4.5 | 4.4 | 0.01 | 4.5 | 4.3 | 0.01 |
| Malignant tumor of breast | 1.1 | <0.9 | 0.06 | 1.2 | <0.9 | 0.10 |
| Malignant tumor of lung | 0.5 | 0.9 | -0.06 | 0.5 | 1.3 | -0.09 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 29.6 | 23.5 | 0.14 | 28.0 | 26.6 | 0.03 |
| Antibacterials for systemic use | 30.4 | 29.5 | 0.02 | 30.4 | 29.1 | 0.03 |
| Antidepressants | 12.8 | 13.6 | -0.02 | 12.8 | 13.8 | -0.03 |
| Antiepileptics | 5.0 | 4.9 | 0.00 | 5.0 | 5.6 | -0.03 |
| Antiinflammatory and antirheumatic products | 42.7 | 45.1 | -0.05 | 42.5 | 42.9 | -0.01 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Antineoplastic agents | 42.5 | 41.1 | 0.03 | 41.2 | 45.5 | -0.09 |
| Antipsoriatics | 0.7 | <0.9 | 0.00 | 0.8 | 0.9 | 0.00 |
| Antithrombotic agents | 22.2 | 18.4 | 0.10 | 20.5 | 22.6 | -0.05 |
| Beta blocking agents | 24.0 | 21.4 | 0.06 | 22.7 | 24.2 | -0.04 |
| Calcium channel blockers | 16.0 | 12.5 | 0.10 | 15.2 | 14.5 | 0.02 |
| Diuretics | 25.3 | 23.1 | 0.05 | 24.0 | 24.5 | -0.01 |
| Drugs for acid related disorders | 66.9 | 67.8 | -0.02 | 66.0 | 67.6 | -0.03 |
| Drugs for obstructive airway diseases | 25.4 | 26.7 | -0.03 | 25.6 | 26.8 | -0.03 |
| Drugs used in diabetes | 11.5 | 11.4 | 0.00 | 11.0 | 13.9 | -0.09 |
| Immunosuppressants | 44.8 | 46.8 | -0.04 | 44.0 | 49.1 | -0.10 |
| Lipid modifying agents | 29.3 | 25.0 | 0.10 | 27.6 | 29.5 | -0.04 |
| Opioids | 20.8 | 21.2 | -0.01 | 20.6 | 22.7 | -0.05 |
| Psycholeptics | 19.5 | 19.3 | 0.01 | 19.4 | 19.9 | -0.01 |
| Psychostimulants, agents used for adhd and nootropics | 0.9 | 1.1 | -0.03 | 0.9 | 1.7 | -0.07 |

## S6.1.8. JMDC

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 15-19 | <2.1 | <0.2 | 0.12 | <0.8 | <0.3 | 0.04 |
| 20-24 | 4.1 | 1.1 | 0.19 | 1.4 | 1.2 | 0.02 |
| 25-29 | 5.4 | 2.2 | 0.17 | 1.8 | 2.2 | -0.03 |
| 30-34 | 9.1 | 3.8 | 0.22 | 3.1 | 3.8 | -0.04 |
| 35-39 | 9.5 | 7.4 | 0.08 | 3.2 | 7.1 | -0.17 |
| 40-44 | 15.4 | 10.3 | 0.15 | 38.4 | 10.4 | 0.65 |
| 50-54 | 16.6 | 16.5 | 0.00 | 16.6 | 16.6 | 0.00 |
| 55-59 | 13.7 | 16.0 | -0.06 | 15.6 | 16.3 | -0.02 |
| 60-64 | 4.1 | 13.4 | -0.33 | 1.4 | 13.0 | -0.46 |
| 65-69 | 3.3 | 8.4 | -0.22 | 1.1 | 8.7 | -0.35 |
| 70-74 | <2.1 | 3.4 | -0.22 | <0.8 | 3.6 | -0.26 |
| Gender: female | 89.6 | 68.2 | 0.54 | 85.5 | 69.6 | 0.38 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 57.3 | 52.4 | 0.10 | 63.6 | 53.6 | 0.20 |
| Chronic liver disease | 10.8 | 5.5 | 0.20 | 3.7 | 5.9 | -0.10 |
| Chronic obstructive lung disease | <2.1 | 1.5 | 0.02 | <0.8 | 1.5 | -0.09 |
| Crohn's disease | <2.1 | 0.5 | -0.02 | <0.8 | 0.7 | -0.08 |
| Depressive disorder | 12.0 | 8.6 | 0.11 | 37.3 | 9.2 | 0.66 |
| Diabetes mellitus | 39.8 | 18.5 | 0.48 | 13.5 | 19.8 | -0.16 |
| Gastroesophageal reflux disease | <2.1 | 0.3 | 0.01 | <0.8 | 0.3 | -0.04 |
| Gastrointestinal hemorrhage | 5.4 | 1.3 | 0.23 | 12.8 | 1.4 | 0.42 |
| Hyperlipidemia | 46.5 | 26.4 | 0.43 | 48.9 | 27.5 | 0.43 |
| Hypertensive disorder | 49.0 | 23.6 | 0.55 | 27.6 | 24.8 | 0.06 |
| Lesion of liver | 5.8 | 1.5 | 0.23 | 2.0 | 1.5 | 0.03 |
| Obesity | <2.1 | 0.8 | -0.05 | <0.8 | 0.9 | -0.10 |
| Osteoarthritis | 20.3 | 38.7 | -0.41 | 17.9 | 38.1 | -0.45 |
| Pneumonia | 9.5 | 4.8 | 0.19 | 47.4 | 5.2 | 1.02 |
| Psoriasis | 3.3 | 5.5 | -0.10 | 1.1 | 5.6 | -0.25 |
| Renal impairment | 9.5 | 1.9 | 0.34 | 3.2 | 2.2 | 0.06 |
| Rheumatoid arthritis | 86.3 | 99.0 | -0.50 | 95.4 | 98.9 | -0.20 |
| Schizophrenia | 3.3 | 2.3 | 0.06 | 1.1 | 2.5 | -0.10 |
| Ulcerative colitis | <2.1 | 1.5 | -0.02 | <0.8 | 1.8 | -0.13 |
| Urinary tract infectious disease | 4.6 | 2.5 | 0.11 | 34.7 | 2.8 | 0.83 |
| Viral hepatitis C | 2.5 | 1.8 | 0.05 | 0.8 | 1.8 | -0.08 |
| Visual system disorder | 93.4 | 43.1 | 1.28 | 53.6 | 47.5 | 0.12 |
| Medical history: Cardiovascular disease | | | | | | |
| Cerebrovascular disease | 4.1 | 2.8 | 0.08 | 1.4 | 2.9 | -0.10 |
| Coronary arteriosclerosis | <2.1 | <0.2 | 0.05 | <0.8 | <0.3 | -0.02 |
| Heart disease | 40.7 | 12.7 | 0.67 | 13.8 | 13.8 | 0.00 |
| Heart failure | 20.3 | 5.8 | 0.44 | 6.9 | 6.6 | 0.01 |
| Ischemic heart disease | 22.8 | 5.1 | 0.53 | 7.7 | 5.7 | 0.08 |
| Peripheral vascular disease | 6.2 | 2.7 | 0.17 | 2.1 | 2.8 | -0.04 |
| Pulmonary embolism | <2.1 | 0.2 | 0.12 | <0.8 | 0.4 | 0.00 |
| Venous thrombosis | 9.1 | 1.6 | 0.34 | 3.1 | 2.0 | 0.07 |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | <2.1 | 0.9 | 0.00 | <0.8 | 0.9 | -0.08 |
| Malignant lymphoma | 2.5 | 1.2 | 0.09 | 0.8 | 1.5 | -0.06 |
| Malignant neoplastic disease | 6.2 | 6.7 | -0.02 | 2.1 | 7.1 | -0.24 |
| Malignant tumor of breast | <2.1 | 1.4 | -0.06 | <0.8 | 1.5 | -0.13 |
| Malignant tumor of colon | <2.1 | 0.6 | -0.03 | <0.8 | 0.6 | -0.08 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 26.1 | 12.7 | 0.35 | 8.9 | 13.5 | -0.14 |
| Antibacterials for systemic use | 71.4 | 50.9 | 0.43 | 79.3 | 52.5 | 0.57 |
| Antidepressants | 10.8 | 7.2 | 0.13 | 3.7 | 7.7 | -0.17 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Antiepileptics | 11.6 | 10.9 | 0.02 | 3.9 | 11.6 | -0.28 |
| Antiinflammatory and antirheumatic products | 39.4 | 72.9 | -0.72 | 79.5 | 71.9 | 0.17 |
| Antineoplastic agents | 15.4 | 28.7 | -0.33 | 16.2 | 28.5 | -0.29 |
| Antipsoriatics | 2.1 | 3.2 | -0.07 | <0.8 | 3.4 | -0.19 |
| Antithrombotic agents | 44.8 | 12.1 | 0.78 | 15.2 | 13.3 | 0.05 |
| Beta blocking agents | 7.9 | 3.9 | 0.17 | 13.6 | 4.3 | 0.31 |
| Calcium channel blockers | 19.5 | 12.4 | 0.20 | 17.6 | 12.8 | 0.13 |
| Diuretics | 9.5 | 4.0 | 0.22 | 3.2 | 4.3 | -0.05 |
| Drugs for acid related disorders | 90.0 | 81.8 | 0.24 | 96.6 | 81.8 | 0.48 |
| Drugs for obstructive airway diseases | 25.7 | 23.3 | 0.06 | 52.9 | 24.3 | 0.59 |
| Drugs used in diabetes | 8.7 | 6.6 | 0.08 | 3.0 | 7.1 | -0.19 |
| Immunosuppressants | 66.8 | 32.6 | 0.73 | 33.6 | 33.8 | 0.00 |
| Lipid modifying agents | 27.4 | 14.7 | 0.32 | 9.3 | 15.6 | -0.18 |
| Opioids | 27.4 | 23.3 | 0.09 | 42.5 | 24.4 | 0.37 |
| Psycholeptics | 43.2 | 27.5 | 0.33 | 58.8 | 28.7 | 0.61 |
| Psychostimulants, agents used for adhd and nootropics | <2.1 | 0.9 | -0.06 | <0.8 | 0.9 | -0.11 |

## S6.1.9. MDCD

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 15-19 | 1.2 | 1.2 | 0.00 | 1.2 | 1.3 | -0.01 |
| 20-24 | 2.1 | 2.8 | -0.04 | 2.1 | 3.1 | -0.06 |
| 25-29 | 4.4 | 3.8 | 0.03 | 4.3 | 4.2 | 0.00 |
| 30-34 | 6.6 | 6.8 | -0.01 | 6.4 | 6.9 | -0.02 |
| 35-39 | 9.0 | 8.8 | 0.01 | 8.8 | 8.8 | 0.00 |
| 40-44 | 10.2 | 9.3 | 0.03 | 10.0 | 9.1 | 0.03 |
| 45-49 | 13.3 | 13.0 | 0.01 | 13.2 | 13.7 | -0.01 |
| 50-54 | 15.9 | 16.1 | 0.00 | 16.2 | 15.9 | 0.01 |
| 55-59 | 15.8 | 16.2 | -0.01 | 15.9 | 15.5 | 0.01 |
| 60-64 | 12.0 | 13.9 | -0.06 | 12.3 | 12.9 | -0.02 |
| 65-69 | 4.5 | 4.0 | 0.02 | 4.6 | 4.2 | 0.02 |
| 70-74 | 2.0 | 1.9 | 0.01 | 2.0 | 1.9 | 0.00 |
| 75-79 | 1.6 | 1.0 | 0.06 | 1.6 | 1.0 | 0.05 |
| 80-84 | 1.0 | 1.0 | 0.00 | 1.0 | 1.0 | 0.00 |
| 85-89 | 0.4 | <0.2 | 0.04 | 0.4 | 0.3 | 0.01 |
| Gender: female | 85.9 | 79.0 | 0.18 | 84.4 | 84.5 | 0.00 |
| Race | | | | | | |
| race = Black or African American | 28.8 | 24.7 | 0.09 | 27.9 | 26.2 | 0.04 |
| race = White | 54.4 | 57.4 | -0.06 | 55.1 | 54.9 | 0.00 |
| Ethnicity | | | | | | |
| ethnicity = Hispanic or Latino | 2.3 | 1.9 | 0.03 | 2.4 | 2.1 | 0.02 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 41.8 | 40.5 | 0.03 | 41.5 | 41.6 | 0.00 |
| Attention deficit hyperactivity disorder | 2.6 | 2.0 | 0.04 | 2.6 | 2.1 | 0.03 |
| Chronic liver disease | 6.9 | 7.4 | -0.02 | 6.9 | 7.4 | -0.02 |
| Chronic obstructive lung disease | 21.0 | 21.6 | -0.02 | 21.2 | 21.5 | -0.01 |
| Crohn's disease | 0.8 | 3.5 | -0.19 | 1.0 | 1.9 | -0.08 |
| Dementia | 1.2 | 0.9 | 0.03 | 1.1 | 1.1 | 0.01 |
| Depressive disorder | 36.0 | 35.4 | 0.01 | 35.5 | 35.8 | -0.01 |
| Gastroesophageal reflux disease | 29.5 | 30.8 | -0.03 | 29.5 | 30.7 | -0.03 |
| Gastrointestinal hemorrhage | 4.9 | 6.4 | -0.06 | 5.0 | 5.9 | -0.04 |
| Human immunodeficiency virus infection | 0.5 | 0.7 | -0.02 | 0.5 | 0.8 | -0.03 |
| Hyperlipidemia | 36.4 | 36.7 | -0.01 | 36.4 | 38.3 | -0.04 |
| Hypertensive disorder | 55.7 | 53.0 | 0.05 | 55.2 | 54.6 | 0.01 |
| Lesion of liver | 2.0 | 1.9 | 0.01 | 2.0 | 2.2 | -0.01 |
| Obesity | 21.5 | 20.0 | 0.04 | 21.2 | 20.2 | 0.02 |
| Osteoarthritis | 57.1 | 57.0 | 0.00 | 57.4 | 57.6 | 0.00 |
| Pneumonia | 8.7 | 8.0 | 0.02 | 8.5 | 8.0 | 0.02 |
| Psoriasis | 2.0 | 6.6 | -0.23 | 2.5 | 3.4 | -0.06 |
| Renal impairment | 9.4 | 8.0 | 0.05 | 9.2 | 8.3 | 0.03 |
| Rheumatoid arthritis | 80.9 | 84.4 | -0.09 | 81.9 | 83.4 | -0.04 |
| Schizophrenia | 1.7 | 2.1 | -0.03 | 1.6 | 2.3 | -0.05 |
| Ulcerative colitis | 0.5 | 1.7 | -0.11 | 0.6 | 1.2 | -0.06 |
| Urinary tract infectious disease | 17.8 | 16.5 | 0.04 | 17.4 | 16.6 | 0.02 |
| Viral hepatitis C | 5.9 | 6.0 | 0.00 | 5.9 | 6.3 | -0.02 |
| Visual system disorder | 39.9 | 40.7 | -0.02 | 40.0 | 39.9 | 0.00 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 3.3 | 2.3 | 0.06 | 3.2 | 3.2 | 0.00 |
| Cerebrovascular disease | 5.3 | 5.2 | 0.00 | 5.1 | 5.3 | -0.01 |
| Coronary arteriosclerosis | 9.7 | 8.7 | 0.04 | 9.6 | 10.1 | -0.02 |
| Heart disease | 29.7 | 26.8 | 0.07 | 29.0 | 28.8 | 0.00 |
| Ischemic heart disease | 7.3 | 7.0 | 0.01 | 7.1 | 8.0 | -0.03 |
| Peripheral vascular disease | 4.8 | 4.1 | 0.03 | 4.6 | 4.3 | 0.02 |
| Pulmonary embolism | 2.0 | 1.0 | 0.08 | 1.9 | 1.6 | 0.02 |
| Venous thrombosis | 3.1 | 2.5 | 0.04 | 2.9 | 3.2 | -0.02 |
| Medical history: Neoplasms | | | | | | |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Hematologic neoplasm | 1.5 | 1.2 | 0.03 | 1.5 | 1.2 | 0.02 |
| Malignant lymphoma | 0.4 | 0.5 | 0.00 | 0.4 | 0.3 | 0.01 |
| Malignant neoplasm of anorectum | 0.2 | 0.2 | -0.02 | 0.2 | <0.2 | 0.00 |
| Malignant neoplastic disease | 7.2 | 7.5 | -0.01 | 7.1 | 7.4 | -0.02 |
| Malignant tumor of breast | 2.0 | 1.7 | 0.02 | 1.9 | 1.6 | 0.02 |
| Malignant tumor of colon | 0.3 | 0.3 | 0.00 | 0.4 | 0.3 | 0.01 |
| Malignant tumor of lung | 0.4 | 0.3 | 0.02 | 0.4 | 0.3 | 0.02 |
| Malignant tumor of urinary bladder | 0.2 | <0.2 | 0.02 | 0.2 | <0.2 | 0.04 |
| Primary malignant neoplasm of prostate | 0.2 | 0.2 | -0.01 | 0.2 | <0.2 | 0.01 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 32.6 | 32.2 | 0.01 | 32.5 | 32.9 | -0.01 |
| Antibacterials for systemic use | 50.4 | 48.5 | 0.04 | 50.1 | 47.8 | 0.04 |
| Antidepressants | 53.7 | 53.0 | 0.01 | 53.5 | 53.0 | 0.01 |
| Antiepileptics | 43.0 | 41.7 | 0.02 | 42.7 | 42.3 | 0.01 |
| Antiinflammatory and antirheumatic products | 58.2 | 60.0 | -0.04 | 58.4 | 59.8 | -0.03 |
| Antineoplastic agents | 30.7 | 41.0 | -0.22 | 33.9 | 32.0 | 0.04 |
| Antipsoriatics | 0.8 | 0.7 | 0.01 | 0.8 | 0.6 | 0.03 |
| Antithrombotic agents | 18.8 | 17.0 | 0.05 | 18.5 | 17.9 | 0.02 |
| Beta blocking agents | 24.9 | 22.9 | 0.05 | 24.4 | 23.3 | 0.03 |
| Calcium channel blockers | 20.0 | 19.2 | 0.02 | 19.7 | 20.4 | -0.02 |
| Diuretics | 33.7 | 32.1 | 0.04 | 33.3 | 32.7 | 0.02 |
| Drugs for acid related disorders | 50.0 | 51.2 | -0.02 | 50.3 | 48.0 | 0.05 |
| Drugs for obstructive airway diseases | 46.2 | 46.9 | -0.01 | 46.2 | 46.5 | -0.01 |
| Drugs used in diabetes | 18.5 | 19.6 | -0.03 | 18.4 | 19.1 | -0.02 |
| Immunosuppressants | 39.8 | 56.0 | -0.33 | 44.4 | 41.8 | 0.05 |
| Lipid modifying agents | 29.2 | 30.0 | -0.02 | 29.3 | 30.9 | -0.04 |
| Opioids | 62.1 | 62.6 | -0.01 | 62.0 | 62.7 | -0.01 |
| Psycholeptics | 49.8 | 49.5 | 0.00 | 49.3 | 50.0 | -0.01 |
| Psychostimulants, agents used for adhd and nootropics | 7.4 | 6.7 | 0.02 | 7.2 | 6.9 | 0.01 |

## S6.1.10. MDCR

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 45-49 | 0.1 | <0.1 | 0.01 | 0.1 | <0.1 | 0.01 |
| 55-59 | 0.7 | 1.0 | -0.03 | 0.8 | 0.8 | -0.01 |
| 60-64 | 1.7 | 2.1 | -0.03 | 1.8 | 2.0 | -0.02 |
| 65-69 | 23.7 | 26.3 | -0.06 | 24.4 | 24.4 | 0.00 |
| 70-74 | 28.1 | 30.9 | -0.06 | 28.6 | 28.8 | 0.00 |
| 75-79 | 22.6 | 20.6 | 0.05 | 22.2 | 21.9 | 0.01 |
| 80-84 | 14.6 | 13.2 | 0.04 | 14.3 | 14.2 | 0.00 |
| 90-94 | 1.3 | 1.2 | 0.02 | 1.3 | 1.3 | 0.00 |
| 95-99 | 0.1 | 0.1 | 0.01 | 0.1 | 0.1 | 0.01 |
| Gender: female | 72.9 | 68.6 | 0.10 | 71.8 | 71.5 | 0.00 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 27.5 | 26.4 | 0.02 | 27.4 | 27.2 | 0.00 |
| Attention deficit hyperactivity disorder | 0.2 | 0.2 | 0.00 | 0.2 | 0.2 | 0.00 |
| Chronic liver disease | 2.1 | 1.9 | 0.02 | 2.1 | 1.8 | 0.02 |
| Chronic obstructive lung disease | 15.8 | 16.0 | -0.01 | 15.7 | 16.0 | -0.01 |
| Crohn's disease | 0.5 | 1.3 | -0.08 | 0.6 | 1.1 | -0.05 |
| Dementia | 2.0 | 1.7 | 0.03 | 2.0 | 1.8 | 0.01 |
| Depressive disorder | 9.2 | 9.2 | 0.00 | 9.2 | 9.2 | 0.00 |
| Diabetes mellitus | 23.1 | 22.6 | 0.01 | 22.9 | 22.7 | 0.00 |
| Gastroesophageal reflux disease | 16.5 | 16.6 | 0.00 | 16.2 | 16.5 | -0.01 |
| Gastrointestinal hemorrhage | 4.8 | 5.1 | -0.01 | 4.8 | 4.9 | -0.01 |
| Human immunodeficiency virus infection | 0.1 | <0.1 | 0.01 | 0.1 | <0.1 | 0.01 |
| Hyperlipidemia | 41.3 | 39.2 | 0.04 | 40.7 | 41.3 | -0.01 |
| Hypertensive disorder | 61.8 | 59.3 | 0.05 | 61.1 | 61.3 | 0.00 |
| Lesion of liver | 1.0 | 1.0 | -0.01 | 1.0 | 1.0 | -0.01 |
| Obesity | 5.6 | 5.4 | 0.01 | 5.5 | 5.4 | 0.01 |
| Osteoarthritis | 62.0 | 59.5 | 0.05 | 61.2 | 61.9 | -0.01 |
| Pneumonia | 9.2 | 9.2 | 0.00 | 9.2 | 9.1 | 0.00 |
| Psoriasis | 2.3 | 4.9 | -0.14 | 2.7 | 3.3 | -0.04 |
| Renal impairment | 11.3 | 10.5 | 0.03 | 11.1 | 11.2 | 0.00 |
| Rheumatoid arthritis | 88.4 | 89.7 | -0.04 | 88.9 | 89.3 | -0.02 |
| Schizophrenia | 0.1 | <0.1 | 0.00 | 0.1 | 0.1 | -0.01 |
| Ulcerative colitis | 0.6 | 2.0 | -0.12 | 0.7 | 1.2 | -0.05 |
| Urinary tract infectious disease | 13.6 | 12.7 | 0.03 | 13.5 | 12.7 | 0.02 |
| Viral hepatitis C | 0.5 | 0.6 | -0.01 | 0.5 | 0.5 | 0.00 |
| Visual system disorder | 55.3 | 55.4 | 0.00 | 55.3 | 55.1 | 0.00 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 10.6 | 9.5 | 0.04 | 10.4 | 10.2 | 0.01 |
| Heart failure | 10.1 | 9.9 | 0.01 | 10.0 | 10.4 | -0.01 |
| Ischemic heart disease | 10.1 | 10.1 | 0.00 | 10.1 | 10.4 | -0.01 |
| Peripheral vascular disease | 6.4 | 5.5 | 0.04 | 6.3 | 6.0 | 0.01 |
| Pulmonary embolism | 1.5 | 1.3 | 0.02 | 1.5 | 1.3 | 0.02 |
| Venous thrombosis | 3.4 | 3.4 | 0.00 | 3.3 | 3.6 | -0.01 |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | 2.2 | 2.3 | 0.00 | 2.2 | 2.4 | -0.01 |
| Malignant lymphoma | 1.3 | 1.5 | -0.02 | 1.3 | 1.4 | -0.01 |
| Malignant neoplasm of anorectum | 0.4 | 0.4 | 0.00 | 0.4 | 0.4 | 0.00 |
| Malignant neoplastic disease | 18.5 | 19.8 | -0.03 | 18.7 | 19.0 | -0.01 |
| Malignant tumor of breast | 3.8 | 4.0 | -0.01 | 3.8 | 3.8 | 0.00 |
| Malignant tumor of colon | 0.8 | 0.7 | 0.02 | 0.9 | 0.7 | 0.02 |
| Malignant tumor of lung | 0.7 | 0.6 | 0.00 | 0.7 | 0.5 | 0.02 |
| Malignant tumor of urinary bladder | 1.0 | 1.1 | -0.02 | 1.0 | 0.9 | 0.00 |
| Primary malignant neoplasm of prostate | 2.4 | 2.8 | -0.02 | 2.5 | 2.4 | 0.01 |
| Medication use | | | | | | |
| Antibacterials for systemic use | 46.3 | 49.0 | -0.05 | 47.0 | 46.3 | 0.01 |
| Antidepressants | 31.5 | 31.4 | 0.00 | 31.7 | 31.3 | 0.01 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Antiepileptics | 20.1 | 21.8 | -0.04 | 20.3 | 20.6 | -0.01 |
| Antiinflammatory and antirheumatic products | 44.0 | 44.4 | -0.01 | 44.1 | 44.8 | -0.02 |
| Antineoplastic agents | 32.1 | 40.3 | -0.17 | 34.8 | 33.3 | 0.03 |
| Antipsoriatics | 1.0 | 1.4 | -0.03 | 1.0 | 1.3 | -0.02 |
| Antithrombotic agents | 22.8 | 22.1 | 0.02 | 22.6 | 22.5 | 0.00 |
| Beta blocking agents | 39.4 | 39.3 | 0.00 | 39.3 | 39.2 | 0.00 |
| Calcium channel blockers | 30.0 | 28.6 | 0.03 | 29.6 | 30.3 | -0.02 |
| Diuretics | 47.1 | 45.2 | 0.04 | 46.7 | 46.2 | 0.01 |
| Drugs for acid related disorders | 44.6 | 45.6 | -0.02 | 44.7 | 45.1 | -0.01 |
| Drugs for obstructive airway diseases | 33.2 | 32.4 | 0.02 | 33.2 | 32.8 | 0.01 |
| Drugs used in diabetes | 17.4 | 16.9 | 0.01 | 17.3 | 16.9 | 0.01 |
| Immunosuppressants | 41.2 | 54.9 | -0.28 | 45.5 | 42.8 | 0.05 |
| Lipid modifying agents | 49.8 | 48.5 | 0.03 | 49.5 | 49.4 | 0.00 |
| Opioids | 43.6 | 44.0 | -0.01 | 43.8 | 43.2 | 0.01 |
| Psycholeptics | 34.6 | 34.1 | 0.01 | 34.5 | 33.6 | 0.02 |
| Psychostimulants, agents used for adhd and nootropics | 2.0 | 2.0 | 0.00 | 2.0 | 1.9 | 0.01 |

## S6.1.11. OpenClaims

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 15-19 | 0.3 | 0.3 | -0.01 | 0.3 | 0.3 | 0.00 |
| 20-24 | 1.2 | 1.2 | -0.01 | 1.2 | 1.2 | 0.00 |
| 25-29 | 1.9 | 1.9 | 0.00 | 1.9 | 1.8 | 0.00 |
| 30-34 | 3.0 | 2.9 | 0.00 | 2.9 | 2.9 | 0.00 |
| 35-39 | 4.3 | 4.4 | -0.01 | 4.3 | 4.3 | 0.00 |
| 40-44 | 5.8 | 5.9 | 0.00 | 5.8 | 5.7 | 0.00 |
| 45-49 | 8.3 | 8.3 | 0.00 | 8.2 | 8.1 | 0.00 |
| 50-54 | 11.5 | 11.9 | -0.01 | 11.5 | 11.5 | 0.00 |
| 55-59 | 13.6 | 14.2 | -0.02 | 13.7 | 13.8 | 0.00 |
| 60-64 | 13.4 | 13.8 | -0.01 | 13.6 | 13.5 | 0.00 |
| 70-74 | 9.9 | 9.6 | 0.01 | 9.9 | 10.0 | 0.00 |
| 75-79 | 10.7 | 9.0 | 0.06 | 10.3 | 10.6 | -0.01 |
| 80-84 | 3.7 | 3.5 | 0.01 | 3.6 | 3.6 | 0.00 |
| 85-89 | 0.2 | 0.2 | 0.00 | 0.2 | 0.2 | 0.00 |
| Gender: female | 81.0 | 73.5 | 0.18 | 79.3 | 79.1 | 0.00 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 20.1 | 19.2 | 0.02 | 19.9 | 19.9 | 0.00 |
| Chronic liver disease | 2.1 | 2.0 | 0.00 | 2.0 | 2.1 | 0.00 |
| Chronic obstructive lung disease | 7.6 | 7.7 | 0.00 | 7.6 | 7.8 | 0.00 |
| Crohn's disease | 0.4 | 1.6 | -0.11 | 0.5 | 0.9 | -0.04 |
| Dementia | 0.8 | 0.7 | 0.01 | 0.8 | 0.8 | 0.00 |
| Depressive disorder | 9.7 | 9.6 | 0.00 | 9.6 | 9.8 | -0.01 |
| Diabetes mellitus | 15.6 | 16.1 | -0.01 | 15.7 | 16.0 | -0.01 |
| Gastrointestinal hemorrhage | 2.4 | 2.5 | -0.01 | 2.4 | 2.4 | 0.00 |
| Hyperlipidemia | 26.0 | 25.8 | 0.01 | 26.0 | 26.4 | -0.01 |
| Hypertensive disorder | 35.0 | 34.5 | 0.01 | 34.9 | 35.2 | -0.01 |
| Lesion of liver | 0.8 | 0.7 | 0.01 | 0.8 | 0.8 | 0.00 |
| Obesity | 6.3 | 6.6 | -0.01 | 6.4 | 6.5 | 0.00 |
| Osteoarthritis | 36.0 | 37.0 | -0.02 | 36.1 | 36.8 | -0.02 |
| Psoriasis | 1.9 | 5.4 | -0.19 | 2.2 | 3.3 | -0.06 |
| Renal impairment | 6.2 | 5.5 | 0.03 | 6.1 | 6.0 | 0.00 |
| Rheumatoid arthritis | 69.0 | 69.6 | -0.01 | 69.3 | 69.8 | -0.01 |
| Schizophrenia | 0.2 | 0.2 | 0.00 | 0.2 | 0.2 | 0.00 |
| Ulcerative colitis | 0.4 | 1.7 | -0.12 | 0.5 | 1.0 | -0.06 |
| Viral hepatitis C | 1.1 | 1.1 | 0.00 | 1.1 | 1.1 | 0.00 |
| Visual system disorder | 21.9 | 20.7 | 0.03 | 21.6 | 21.6 | 0.00 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 3.6 | 3.4 | 0.01 | 3.6 | 3.6 | 0.00 |
| Cerebrovascular disease | 3.4 | 2.8 | 0.03 | 3.2 | 3.3 | 0.00 |
| Coronary arteriosclerosis | 6.8 | 6.8 | 0.00 | 6.8 | 6.9 | 0.00 |
| Heart disease | 18.3 | 17.3 | 0.03 | 18.1 | 18.3 | 0.00 |
| Heart failure | 4.0 | 3.7 | 0.02 | 3.9 | 4.0 | 0.00 |
| Ischemic heart disease | 3.5 | 3.4 | 0.01 | 3.5 | 3.6 | 0.00 |
| Peripheral vascular disease | 9.7 | 9.1 | 0.02 | 9.6 | 9.6 | 0.00 |
| Venous thrombosis | 1.5 | 1.4 | 0.01 | 1.5 | 1.5 | 0.00 |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | 0.9 | 0.9 | 0.00 | 0.9 | 1.0 | 0.00 |
| Malignant neoplasm of anorectum | 0.1 | 0.1 | 0.00 | 0.1 | 0.1 | 0.00 |
| Malignant neoplastic disease | 7.2 | 7.2 | 0.00 | 7.2 | 7.3 | 0.00 |
| Malignant tumor of breast | 1.8 | 1.6 | 0.01 | 1.7 | 1.7 | 0.00 |
| Malignant tumor of lung | 0.3 | 0.3 | 0.00 | 0.3 | 0.3 | 0.00 |
| Malignant tumor of urinary bladder | 0.2 | 0.3 | -0.01 | 0.3 | 0.3 | 0.00 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 30.8 | 33.0 | -0.05 | 31.4 | 31.4 | 0.00 |
| Antibacterials for systemic use | 36.1 | 38.8 | -0.06 | 36.8 | 36.6 | 0.00 |
| Antidepressants | 34.5 | 35.7 | -0.03 | 34.7 | 34.8 | 0.00 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Antiepileptics | 24.0 | 26.4 | -0.05 | 24.5 | 24.6 | 0.00 |
| Antiinflammatory and antirheumatic products | 41.0 | 45.2 | -0.08 | 42.0 | 41.9 | 0.00 |
| Antineoplastic agents | 31.6 | 38.0 | -0.14 | 33.3 | 33.4 | 0.00 |
| Antipsoriatics | 0.7 | 1.0 | -0.03 | 0.8 | 0.9 | -0.01 |
| Beta blocking agents | 23.1 | 24.1 | -0.02 | 23.3 | 23.5 | 0.00 |
| Drugs used in diabetes | 14.0 | 15.4 | -0.04 | 14.3 | 14.6 | -0.01 |
| Immunosuppressants | 41.9 | 53.4 | -0.23 | 44.7 | 44.7 | 0.00 |
| Lipid modifying agents | 29.0 | 31.5 | -0.05 | 29.6 | 29.8 | 0.00 |
| Opioids | 34.8 | 37.8 | -0.06 | 35.4 | 35.5 | 0.00 |
| Psycholeptics | 29.5 | 30.8 | -0.03 | 29.7 | 29.9 | 0.00 |
| Psychostimulants, agents used for adhd and nootropics | 4.5 | 4.8 | -0.01 | 4.5 | 4.6 | 0.00 |

## S6.1.12. OptumEHR

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 15-19 | 0.2 | 0.3 | -0.02 | 0.2 | 0.3 | -0.01 |
| 20-24 | 1.0 | 1.0 | 0.00 | 1.0 | 1.0 | 0.00 |
| 25-29 | 1.8 | 1.9 | -0.01 | 1.8 | 1.9 | -0.01 |
| 30-34 | 3.1 | 3.0 | 0.00 | 3.1 | 3.0 | 0.00 |
| 35-39 | 4.2 | 4.6 | -0.02 | 4.2 | 4.2 | 0.00 |
| 40-44 | 5.9 | 5.8 | 0.01 | 5.9 | 5.6 | 0.01 |
| 45-49 | 7.9 | 8.2 | -0.01 | 7.9 | 7.9 | 0.00 |
| 50-54 | 11.5 | 11.9 | -0.01 | 11.6 | 11.5 | 0.00 |
| 55-59 | 13.8 | 14.7 | -0.03 | 14.0 | 14.3 | -0.01 |
| 60-64 | 13.3 | 13.9 | -0.02 | 13.5 | 13.4 | 0.00 |
| 65-69 | 12.1 | 12.7 | -0.02 | 12.3 | 12.6 | -0.01 |
| 70-74 | 10.1 | 9.6 | 0.02 | 10.0 | 9.9 | 0.00 |
| 75-79 | 8.1 | 6.9 | 0.04 | 7.8 | 7.9 | 0.00 |
| 80-84 | 5.5 | 4.2 | 0.06 | 5.2 | 5.3 | -0.01 |
| 85-89 | 1.6 | 1.2 | 0.03 | 1.5 | 1.4 | 0.00 |
| Gender: female | 80.1 | 72.4 | 0.18 | 78.2 | 78.6 | -0.01 |
| Race | | | | | | |
| race = Asian | 1.5 | 1.1 | 0.04 | 1.5 | 1.4 | 0.01 |
| race = Black or African American | 10.1 | 8.4 | 0.06 | 9.7 | 9.6 | 0.00 |
| race = White | 81.4 | 83.3 | -0.05 | 81.8 | 81.9 | 0.00 |
| Ethnicity | | | | | | |
| ethnicity = Hispanic or Latino | 5.3 | 6.1 | -0.04 | 5.4 | 5.4 | 0.00 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 17.9 | 18.3 | -0.01 | 17.9 | 18.1 | 0.00 |
| Attention deficit hyperactivity disorder | 1.0 | 0.8 | 0.01 | 0.9 | 0.8 | 0.01 |
| Chronic liver disease | 2.7 | 3.0 | -0.02 | 2.8 | 2.9 | -0.01 |
| Chronic obstructive lung disease | 8.5 | 9.2 | -0.03 | 8.6 | 8.9 | -0.01 |
| Crohn's disease | 0.5 | 1.6 | -0.12 | 0.6 | 0.9 | -0.04 |
| Dementia | 1.1 | 0.9 | 0.02 | 1.0 | 1.1 | -0.01 |
| Depressive disorder | 15.7 | 15.4 | 0.01 | 15.6 | 15.7 | 0.00 |
| Diabetes mellitus | 14.9 | 15.0 | 0.00 | 15.0 | 15.3 | -0.01 |
| Gastroesophageal reflux disease | 18.4 | 18.1 | 0.01 | 18.3 | 18.1 | 0.00 |
| Gastrointestinal hemorrhage | 2.1 | 2.4 | -0.02 | 2.1 | 2.2 | 0.00 |
| Human immunodeficiency virus infection | 0.1 | 0.2 | -0.01 | 0.1 | 0.2 | -0.01 |
| Hyperlipidemia | 30.4 | 31.1 | -0.02 | 30.5 | 30.6 | 0.00 |
| Hypertensive disorder | 38.9 | 38.6 | 0.01 | 38.8 | 39.2 | -0.01 |
| Lesion of liver | 1.1 | 0.9 | 0.02 | 1.0 | 1.0 | 0.01 |
| Obesity | 11.3 | 12.1 | -0.03 | 11.4 | 11.6 | -0.01 |
| Osteoarthritis | 35.1 | 36.2 | -0.02 | 35.3 | 35.7 | -0.01 |
| Pneumonia | 5.0 | 5.1 | 0.00 | 5.0 | 5.0 | 0.00 |
| Psoriasis | 1.7 | 4.4 | -0.16 | 2.1 | 2.7 | -0.04 |
| Renal impairment | 7.7 | 6.7 | 0.04 | 7.4 | 7.7 | -0.01 |
| Rheumatoid arthritis | 84.8 | 84.7 | 0.00 | 84.9 | 85.5 | -0.02 |
| Ulcerative colitis | 0.4 | 1.5 | -0.11 | 0.5 | 0.8 | -0.04 |
| Urinary tract infectious disease | 7.6 | 6.3 | 0.05 | 7.2 | 7.1 | 0.00 |
| Viral hepatitis C | 1.2 | 1.5 | -0.02 | 1.3 | 1.4 | -0.01 |
| Visual system disorder | 13.8 | 13.6 | 0.00 | 13.7 | 13.4 | 0.01 |
| Medical history: Cardiovascular disease | | | | | | |
| Coronary arteriosclerosis | 8.3 | 8.5 | 0.00 | 8.3 | 8.5 | -0.01 |
| Heart disease | 20.9 | 20.2 | 0.02 | 20.7 | 21.1 | -0.01 |
| Heart failure | 4.7 | 4.4 | 0.02 | 4.7 | 4.9 | -0.01 |
| Ischemic heart disease | 4.4 | 4.5 | 0.00 | 4.4 | 4.5 | 0.00 |
| Peripheral vascular disease | 2.6 | 2.4 | 0.01 | 2.6 | 2.5 | 0.00 |
| Pulmonary embolism | 1.0 | 1.0 | 0.00 | 1.0 | 1.0 | -0.01 |
| Venous thrombosis | 1.9 | 2.0 | -0.01 | 1.9 | 2.0 | -0.01 |
| Medical history: Neoplasms | | | | | | |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Hematologic neoplasm | 1.1 | 1.2 | -0.01 | 1.1 | 1.2 | -0.01 |
| Malignant lymphoma | 0.6 | 0.7 | -0.01 | 0.6 | 0.7 | 0.00 |
| Malignant neoplasm of anorectum | 0.2 | 0.2 | 0.01 | 0.2 | 0.2 | 0.01 |
| Malignant neoplastic disease | 8.5 | 8.8 | -0.01 | 8.5 | 8.8 | -0.01 |
| Malignant tumor of breast | 1.9 | 1.7 | 0.02 | 1.9 | 1.9 | 0.00 |
| Malignant tumor of colon | 0.4 | 0.3 | 0.00 | 0.4 | 0.4 | 0.00 |
| Malignant tumor of lung | 0.4 | 0.4 | -0.01 | 0.4 | 0.4 | -0.01 |
| Malignant tumor of urinary bladder | 0.2 | 0.4 | -0.03 | 0.2 | 0.3 | -0.02 |
| Primary malignant neoplasm of prostate | 0.6 | 0.8 | -0.03 | 0.7 | 0.7 | 0.00 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 30.6 | 31.6 | -0.02 | 30.8 | 31.3 | -0.01 |
| Antibacterials for systemic use | 28.1 | 29.8 | -0.04 | 28.3 | 28.2 | 0.00 |
| Antidepressants | 36.0 | 35.6 | 0.01 | 35.8 | 36.3 | -0.01 |
| Antiepileptics | 24.0 | 24.8 | -0.02 | 24.2 | 24.4 | -0.01 |
| Antiinflammatory and antirheumatic products | 43.7 | 47.2 | -0.07 | 44.5 | 44.6 | 0.00 |
| Antineoplastic agents | 34.4 | 38.1 | -0.08 | 35.4 | 36.4 | -0.02 |
| Antipsoriatics | 0.6 | 0.7 | -0.01 | 0.6 | 0.6 | 0.00 |
| Antithrombotic agents | 33.0 | 31.7 | 0.03 | 32.6 | 33.2 | -0.01 |
| Beta blocking agents | 26.7 | 27.0 | -0.01 | 26.8 | 27.2 | -0.01 |
| Calcium channel blockers | 17.2 | 16.7 | 0.01 | 17.1 | 17.5 | -0.01 |
| Diuretics | 29.2 | 28.3 | 0.02 | 29.1 | 29.4 | -0.01 |
| Drugs for acid related disorders | 45.1 | 45.5 | -0.01 | 45.1 | 45.4 | 0.00 |
| Drugs for obstructive airway diseases | 34.5 | 35.2 | -0.02 | 34.6 | 35.0 | -0.01 |
| Drugs used in diabetes | 15.1 | 15.7 | -0.02 | 15.3 | 15.8 | -0.01 |
| Immunosuppressants | 47.1 | 56.1 | -0.18 | 49.2 | 50.2 | -0.02 |
| Lipid modifying agents | 30.2 | 31.7 | -0.03 | 30.6 | 31.0 | -0.01 |
| Opioids | 39.3 | 41.1 | -0.04 | 39.6 | 40.3 | -0.01 |
| Psycholeptics | 35.2 | 35.0 | 0.00 | 35.1 | 35.5 | -0.01 |
| Psychostimulants, agents used for adhd and nootropics | 4.3 | 4.0 | 0.01 | 4.2 | 4.1 | 0.01 |

## S6.1.13. SIDIAP

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 20-24 | 0.6 | <1.3 | -0.02 | 0.6 | <1.0 | -0.02 |
| 25-29 | 2.2 | 2.9 | -0.05 | 2.0 | 4.6 | -0.15 |
| 30-34 | 4.4 | 4.7 | -0.02 | 4.6 | 4.3 | 0.01 |
| 35-39 | 7.1 | 9.7 | -0.09 | 7.2 | 13.3 | -0.20 |
| 40-44 | 8.0 | 6.8 | 0.05 | 8.3 | 5.6 | 0.11 |
| 45-49 | 7.5 | 9.4 | -0.07 | 7.4 | 7.3 | 0.00 |
| 50-54 | 10.1 | 12.3 | -0.07 | 10.5 | 7.7 | 0.10 |
| 55-59 | 11.5 | 9.4 | 0.07 | 11.5 | 9.5 | 0.06 |
| 60-64 | 11.2 | 10.8 | 0.02 | 10.9 | 11.1 | -0.01 |
| 65-69 | 10.8 | 10.2 | 0.02 | 11.1 | 8.7 | 0.08 |
| 70-74 | 9.9 | 6.8 | 0.11 | 9.6 | 9.6 | 0.00 |
| 75-79 | 7.5 | 9.4 | -0.07 | 7.6 | 9.1 | -0.05 |
| 80-84 | 6.2 | 5.8 | 0.02 | 6.0 | 8.0 | -0.08 |
| 85-89 | 2.0 | <1.3 | 0.13 | 2.0 | <1.0 | 0.16 |
| 90-94 | 0.6 | <1.3 | 0.06 | 0.6 | <1.0 | 0.06 |
| Gender: female | 79.2 | 66.7 | 0.29 | 75.9 | 79.8 | -0.09 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 17.9 | 17.3 | 0.02 | 17.4 | 26.6 | -0.22 |
| Chronic liver disease | 1.0 | <1.3 | -0.01 | 1.0 | <1.0 | 0.04 |
| Chronic obstructive lung disease | 2.6 | 2.6 | 0.00 | 2.4 | 1.7 | 0.05 |
| Depressive disorder | 3.0 | 4.7 | -0.09 | 3.1 | 9.0 | -0.25 |
| Diabetes mellitus | 2.9 | 3.1 | -0.02 | 2.8 | 2.3 | 0.03 |
| Gastroesophageal reflux disease | 1.0 | 1.3 | -0.02 | 1.1 | 1.5 | -0.04 |
| Gastrointestinal hemorrhage | 2.7 | 3.7 | -0.05 | 2.9 | 3.6 | -0.04 |
| Hyperlipidemia | 4.3 | 3.4 | 0.04 | 4.0 | 7.8 | -0.16 |
| Hypertensive disorder | 5.3 | 6.6 | -0.05 | 5.7 | 7.9 | -0.09 |
| Obesity | 4.8 | 4.2 | 0.03 | 4.6 | 3.3 | 0.07 |
| Osteoarthritis | 3.0 | 3.1 | -0.01 | 3.2 | 4.9 | -0.09 |
| Pneumonia | 2.0 | 2.4 | -0.02 | 2.2 | 7.3 | -0.24 |
| Psoriasis | 0.7 | 2.1 | -0.12 | 0.6 | 2.0 | -0.12 |
| Renal impairment | 1.8 | 2.4 | -0.04 | 2.0 | 2.1 | -0.01 |
| Rheumatoid arthritis | 35.6 | 26.5 | 0.20 | 33.2 | 42.3 | -0.19 |
| Urinary tract infectious disease | 7.5 | 5.8 | 0.07 | 7.4 | 6.0 | 0.06 |
| Viral hepatitis C | 0.9 | <1.3 | 0.04 | 0.9 | <1.0 | 0.07 |
| Visual system disorder | 16.0 | 17.3 | -0.03 | 15.6 | 19.5 | -0.10 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 0.6 | 1.3 | -0.08 | 0.5 | 4.1 | -0.24 |
| Cerebrovascular disease | 2.2 | <1.3 | 0.09 | 2.2 | <1.0 | 0.13 |
| Heart disease | 7.2 | 6.8 | 0.02 | 7.0 | 9.2 | -0.08 |
| Heart failure | 1.1 | <1.3 | 0.01 | 1.1 | 3.3 | -0.15 |
| Ischemic heart disease | 1.6 | <1.3 | 0.10 | 1.5 | <1.0 | 0.13 |
| Peripheral vascular disease | 3.6 | 2.4 | 0.07 | 3.8 | 1.7 | 0.13 |
| Pulmonary embolism | 0.4 | <1.3 | 0.02 | 0.4 | <1.0 | 0.04 |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | <0.4 | <1.3 | -0.08 | <0.4 | <1.0 | -0.06 |
| Malignant neoplastic disease | 3.0 | 3.4 | -0.02 | 3.0 | 2.4 | 0.04 |
| Malignant tumor of breast | 0.4 | <1.3 | -0.02 | <0.4 | <1.0 | -0.02 |
| Malignant tumor of colon | <0.4 | <1.3 | 0.01 | <0.4 | <1.0 | 0.04 |
| Malignant tumor of lung | <0.4 | <1.3 | -0.04 | <0.4 | <1.0 | -0.03 |
| Malignant tumor of urinary bladder | <0.4 | <1.3 | -0.05 | <0.4 | <1.0 | -0.02 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 26.2 | 30.7 | -0.10 | 27.2 | 27.0 | 0.00 |
| Antibacterials for systemic use | 17.4 | 17.8 | -0.01 | 17.1 | 19.2 | -0.05 |
| Antidepressants | 21.9 | 22.8 | -0.02 | 21.9 | 27.7 | -0.13 |
| Antiepileptics | 9.9 | 11.8 | -0.06 | 9.9 | 11.9 | -0.06 |
| Antiinflammatory and antirheumatic products | 70.0 | 71.7 | -0.04 | 69.8 | 68.2 | 0.03 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Antineoplastic agents | 21.3 | 21.0 | 0.01 | 21.3 | 20.6 | 0.02 |
| Antipsoriatics | 1.3 | 1.6 | -0.02 | 1.4 | <1.0 | 0.04 |
| Antithrombotic agents | 17.4 | 16.3 | 0.03 | 17.3 | 15.6 | 0.05 |
| Beta blocking agents | 11.2 | 10.5 | 0.02 | 11.5 | 10.1 | 0.04 |
| Calcium channel blockers | 10.3 | 6.0 | 0.16 | 9.8 | 9.7 | 0.00 |
| Diuretics | 22.9 | 21.8 | 0.03 | 22.6 | 19.2 | 0.08 |
| Drugs for acid related disorders | 77.9 | 83.5 | -0.14 | 78.8 | 78.0 | 0.02 |
| Drugs for obstructive airway diseases | 24.7 | 25.5 | -0.02 | 24.2 | 21.1 | 0.07 |
| Drugs used in diabetes | 10.5 | 10.8 | -0.01 | 10.6 | 9.2 | 0.05 |
| Immunosuppressants | 32.6 | 36.2 | -0.08 | 33.1 | 30.3 | 0.06 |
| Lipid modifying agents | 25.3 | 21.5 | 0.09 | 24.5 | 23.3 | 0.03 |
| Opioids | 22.6 | 23.4 | -0.02 | 22.9 | 23.5 | -0.01 |
| Psycholeptics | 36.3 | 40.7 | -0.09 | 37.1 | 44.2 | -0.14 |
| Psychostimulants, agents used for adhd and nootropics | 1.3 | 3.1 | -0.13 | 1.3 | 2.0 | -0.05 |

## S6.1.14. VA

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 20-24 | 0.1 | 0.1 | 0.00 | 0.1 | 0.2 | -0.02 |
| 25-29 | 0.6 | 0.6 | 0.00 | 0.6 | 0.6 | -0.01 |
| 30-34 | 1.2 | 1.0 | 0.02 | 1.1 | 1.1 | 0.00 |
| 35-39 | 1.6 | 1.7 | 0.00 | 1.5 | 1.7 | -0.02 |
| 40-44 | 2.7 | 3.0 | -0.02 | 2.7 | 2.8 | -0.01 |
| 45-49 | 5.1 | 5.1 | 0.00 | 5.1 | 5.0 | 0.00 |
| 50-54 | 8.4 | 9.7 | -0.05 | 8.8 | 8.7 | 0.00 |
| 55-59 | 12.8 | 14.5 | -0.05 | 13.4 | 13.1 | 0.01 |
| 60-64 | 17.1 | 17.8 | -0.02 | 17.3 | 17.6 | -0.01 |
| 65-69 | 16.9 | 17.0 | 0.00 | 17.1 | 17.0 | 0.00 |
| 70-74 | 13.8 | 13.7 | 0.00 | 13.9 | 13.7 | 0.00 |
| 75-79 | 10.0 | 9.1 | 0.03 | 9.8 | 9.7 | 0.00 |
| 80-84 | 6.5 | 4.7 | 0.08 | 5.9 | 6.2 | -0.01 |
| 85-89 | 2.5 | 1.6 | 0.06 | 2.2 | 2.2 | 0.00 |
| 90-94 | 0.5 | 0.3 | 0.03 | 0.5 | 0.3 | 0.03 |
| Gender: female | 14.5 | 10.4 | 0.13 | 13.2 | 13.1 | 0.00 |
| Race | | | | | | |
| race = Asian | 0.5 | 0.4 | 0.00 | 0.5 | 0.4 | 0.01 |
| race = Black or African American | 14.4 | 12.9 | 0.04 | 13.9 | 13.6 | 0.01 |
| race = White | 73.6 | 74.6 | -0.02 | 73.9 | 74.1 | 0.00 |
| race = Unknown | 9.9 | 10.4 | -0.02 | 10.1 | 10.2 | 0.00 |
| race = Native Hawaiian or Other Pacific Islander | 0.7 | 0.8 | -0.01 | 0.7 | 0.8 | -0.02 |
| race = American Indian or Alaska Native | 0.9 | 0.9 | 0.00 | 0.9 | 0.8 | 0.01 |
| Ethnicity | | | | | | |
| ethnicity = Hispanic or Latino | 4.8 | 4.9 | 0.00 | 4.9 | 4.7 | 0.00 |
| ethnicity = Not Hispanic or Latino | 89.3 | 88.6 | 0.02 | 89.0 | 89.1 | 0.00 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 11.4 | 12.3 | -0.03 | 11.8 | 11.3 | 0.02 |
| Attention deficit hyperactivity disorder | 0.4 | 0.4 | 0.00 | 0.4 | 0.5 | -0.01 |
| Chronic liver disease | 3.4 | 3.4 | 0.00 | 3.5 | 3.6 | 0.00 |
| Crohn's disease | 0.3 | 0.9 | -0.07 | 0.4 | 0.6 | -0.02 |
| Dementia | 1.2 | 1.0 | 0.02 | 1.1 | 1.1 | 0.00 |
| Depressive disorder | 21.9 | 21.6 | 0.01 | 21.8 | 21.6 | 0.00 |
| Diabetes mellitus | 24.5 | 23.8 | 0.02 | 24.1 | 24.1 | 0.00 |
| Gastroesophageal reflux disease | 5.8 | 5.4 | 0.01 | 5.6 | 5.5 | 0.01 |
| Gastrointestinal hemorrhage | 2.1 | 2.8 | -0.04 | 2.3 | 2.3 | 0.00 |
| Human immunodeficiency virus infection | 0.2 | 0.2 | 0.00 | 0.2 | 0.2 | 0.00 |
| Hypertensive disorder | 58.1 | 57.6 | 0.01 | 58.0 | 58.0 | 0.00 |
| Lesion of liver | 1.4 | 1.4 | 0.00 | 1.4 | 1.4 | 0.01 |
| Obesity | 14.3 | 14.3 | 0.00 | 14.2 | 14.3 | 0.00 |
| Psoriasis | 2.2 | 7.0 | -0.23 | 3.2 | 4.1 | -0.05 |
| Renal impairment | 7.2 | 6.6 | 0.02 | 7.0 | 7.1 | 0.00 |
| Rheumatoid arthritis | 90.4 | 89.6 | 0.02 | 90.5 | 90.2 | 0.01 |
| Schizophrenia | 0.6 | 0.7 | -0.01 | 0.6 | 0.6 | 0.01 |
| Ulcerative colitis | 0.4 | 1.0 | -0.06 | 0.5 | 0.7 | -0.02 |
| Urinary tract infectious disease | 3.5 | 3.1 | 0.02 | 3.4 | 3.1 | 0.02 |
| Viral hepatitis C | 3.7 | 3.7 | 0.00 | 3.7 | 3.8 | 0.00 |
| Visual system disorder | 38.5 | 41.9 | -0.07 | 39.5 | 38.7 | 0.02 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 6.1 | 5.4 | 0.03 | 5.9 | 5.8 | 0.00 |
| Cerebrovascular disease | 4.3 | 4.0 | 0.02 | 4.3 | 4.3 | 0.00 |
| Coronary arteriosclerosis | 14.7 | 15.1 | -0.01 | 14.8 | 15.2 | -0.01 |
| Heart disease | 30.5 | 30.4 | 0.00 | 30.6 | 31.1 | -0.01 |
| Heart failure | 5.9 | 6.1 | -0.01 | 5.9 | 6.1 | -0.01 |
| Ischemic heart disease | 11.0 | 11.2 | 0.00 | 11.1 | 11.1 | 0.00 |
| Pulmonary embolism | 0.7 | 0.8 | 0.00 | 0.7 | 0.8 | -0.01 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | HCQ | SSZ | | HCQ | SSZ | |
| | % | % | Std. diff | % | % | Std. diff |
| Venous thrombosis | 1.4 | 1.3 | 0.01 | 1.4 | 1.3 | 0.01 |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | 1.1 | 1.0 | 0.02 | 1.1 | 1.0 | 0.01 |
| Malignant lymphoma | 0.8 | 0.6 | 0.01 | 0.8 | 0.6 | 0.02 |
| Malignant neoplasm of anorectum | 0.1 | 0.1 | 0.00 | 0.2 | 0.1 | 0.01 |
| Malignant tumor of breast | 0.4 | 0.2 | 0.02 | 0.3 | 0.3 | 0.01 |
| Malignant tumor of colon | 0.6 | 0.6 | 0.00 | 0.6 | 0.6 | 0.00 |
| Malignant tumor of lung | 0.3 | 0.4 | -0.01 | 0.4 | 0.4 | 0.00 |
| Malignant tumor of urinary bladder | 0.8 | 0.8 | -0.01 | 0.7 | 0.9 | -0.01 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 38.5 | 39.2 | -0.01 | 38.8 | 39.0 | 0.00 |
| Antibacterials for systemic use | 22.8 | 25.3 | -0.06 | 23.8 | 23.2 | 0.01 |
| Antidepressants | 35.0 | 36.1 | -0.02 | 35.3 | 34.8 | 0.01 |
| Antiepileptics | 21.3 | 20.9 | 0.01 | 21.1 | 21.0 | 0.00 |
| Antiinflammatory and antirheumatic products | 47.8 | 52.1 | -0.09 | 49.2 | 47.8 | 0.03 |
| Antineoplastic agents | 36.8 | 41.7 | -0.10 | 38.8 | 38.2 | 0.01 |
| Antipsoriatics | 1.0 | 2.0 | -0.09 | 1.1 | 1.5 | -0.03 |
| Antithrombotic agents | 28.6 | 28.9 | -0.01 | 28.8 | 28.6 | 0.01 |
| Beta blocking agents | 32.0 | 32.2 | 0.00 | 32.0 | 32.1 | 0.00 |
| Calcium channel blockers | 21.8 | 21.8 | 0.00 | 21.9 | 22.3 | -0.01 |
| Diuretics | 32.8 | 33.5 | -0.02 | 33.1 | 33.2 | 0.00 |
| Drugs for acid related disorders | 52.3 | 55.9 | -0.07 | 53.5 | 52.8 | 0.01 |
| Drugs for obstructive airway diseases | 27.8 | 28.9 | -0.02 | 28.2 | 28.0 | 0.00 |
| Drugs used in diabetes | 19.7 | 19.4 | 0.01 | 19.4 | 19.6 | 0.00 |
| Immunosuppressants | 44.0 | 51.9 | -0.16 | 47.0 | 46.3 | 0.01 |
| Lipid modifying agents | 45.7 | 45.1 | 0.01 | 45.5 | 45.6 | 0.00 |
| Opioids | 31.0 | 34.1 | -0.06 | 32.0 | 31.5 | 0.01 |
| Psycholeptics | 23.7 | 24.8 | -0.03 | 24.0 | 24.0 | 0.00 |
| Psychostimulants, agents used for adhd and nootropics | 1.8 | 1.6 | 0.02 | 1.8 | 1.6 | 0.01 |

## S6.2. AZM vs AMX

### S6.2.1. AmbEMR

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 20-24 | 0.8 | 0.7 | 0.01 | 0.8 | 0.7 | 0.01 |
| 25-29 | 1.2 | 1.3 | -0.01 | 1.3 | 1.2 | 0.00 |
| 30-34 | 2.5 | 2.3 | 0.02 | 2.6 | 2.3 | 0.02 |
| 35-39 | 3.5 | 3.9 | -0.02 | 3.7 | 3.7 | 0.00 |
| 40-44 | 5.8 | 5.1 | 0.03 | 5.8 | 5.4 | 0.02 |
| 45-49 | 7.5 | 7.3 | 0.01 | 7.7 | 7.3 | 0.01 |
| 50-54 | 10.1 | 10.4 | -0.01 | 10.1 | 10.5 | -0.01 |
| 55-59 | 13.4 | 13.7 | -0.01 | 13.5 | 14.0 | -0.01 |
| 60-64 | 14.1 | 14.4 | -0.01 | 13.9 | 14.2 | -0.01 |
| 65-69 | 13.8 | 14.1 | -0.01 | 13.7 | 14.1 | -0.01 |
| 70-74 | 12.7 | 12.1 | 0.02 | 12.2 | 11.9 | 0.01 |
| 75-79 | 10.6 | 10.1 | 0.02 | 10.6 | 10.3 | 0.01 |
| 80-84 | 3.9 | 4.5 | -0.03 | 4.1 | 4.2 | -0.01 |
| Gender: female | 83.2 | 82.5 | 0.02 | 83.2 | 82.9 | 0.01 |
| Race | | | | | | |
| race = Asian | 1.5 | 1.1 | 0.03 | 1.4 | 1.1 | 0.02 |
| race = White | 75.6 | 75.3 | 0.01 | 75.7 | 75.6 | 0.00 |
| race = African American | 8.2 | 8.1 | 0.00 | 8.2 | 8.1 | 0.00 |
| Ethnicity | | | | | | |
| ethnicity = Hispanic or Latino | 1.5 | 1.2 | 0.03 | 1.4 | 1.2 | 0.02 |
| ethnicity = Not Hispanic or Latino | 85.2 | 84.5 | 0.02 | 85.3 | 84.8 | 0.02 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 43.3 | 34.9 | 0.17 | 39.9 | 40.4 | -0.01 |
| Attention deficit hyperactivity disorder | 0.7 | 0.9 | -0.03 | 0.7 | 0.9 | -0.03 |
| Chronic liver disease | 1.5 | 1.7 | -0.02 | 1.5 | 1.7 | -0.02 |
| Chronic obstructive lung disease | 10.6 | 8.4 | 0.07 | 9.2 | 10.4 | -0.04 |
| Crohn's disease | 0.4 | 0.6 | -0.02 | 0.4 | 0.5 | -0.01 |
| Dementia | 0.7 | 0.9 | -0.03 | 0.7 | 0.9 | -0.02 |
| Depressive disorder | 19.4 | 19.5 | 0.00 | 19.8 | 19.7 | 0.00 |
| Diabetes mellitus | 14.0 | 15.1 | -0.03 | 14.6 | 14.9 | -0.01 |
| Gastroesophageal reflux disease | 20.6 | 21.1 | -0.01 | 20.9 | 21.3 | -0.01 |
| Gastrointestinal hemorrhage | 1.6 | 1.8 | -0.01 | 1.7 | 1.7 | 0.00 |
| Human immunodeficiency virus infection | 0.1 | 0.1 | 0.00 | 0.1 | 0.1 | 0.00 |
| Hyperlipidemia | 33.2 | 32.8 | 0.01 | 33.2 | 32.8 | 0.01 |
| Hypertensive disorder | 41.4 | 42.2 | -0.02 | 41.8 | 41.6 | 0.00 |
| Lesion of liver | 0.8 | 1.1 | -0.03 | 0.9 | 1.1 | -0.02 |
| Obesity | 11.7 | 11.6 | 0.00 | 12.0 | 11.8 | 0.00 |
| Osteoarthritis | 28.3 | 29.7 | -0.03 | 28.8 | 28.8 | 0.00 |
| Pneumonia | 6.5 | 5.0 | 0.06 | 5.7 | 6.5 | -0.03 |
| Psoriasis | 1.6 | 1.8 | -0.02 | 1.6 | 1.7 | -0.01 |
| Renal impairment | 6.5 | 7.3 | -0.03 | 6.7 | 7.2 | -0.02 |
| Rheumatoid arthritis | 80.0 | 78.7 | 0.03 | 79.5 | 79.2 | 0.01 |
| Schizophrenia | 0.1 | 0.1 | 0.01 | 0.1 | 0.1 | 0.01 |
| Ulcerative colitis | 0.5 | 0.4 | 0.02 | 0.6 | 0.4 | 0.04 |
| Urinary tract infectious disease | 9.5 | 11.9 | -0.08 | 10.4 | 10.5 | -0.01 |
| Viral hepatitis C | 0.8 | 1.1 | -0.03 | 0.8 | 1.0 | -0.02 |
| Visual system disorder | 12.0 | 12.4 | -0.01 | 12.2 | 12.2 | 0.00 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 3.3 | 4.0 | -0.04 | 3.4 | 3.9 | -0.03 |
| Cerebrovascular disease | 3.5 | 3.7 | -0.01 | 3.6 | 3.4 | 0.01 |
| Heart disease | 17.5 | 18.4 | -0.02 | 17.7 | 18.2 | -0.01 |
| Heart failure | 3.5 | 3.6 | -0.01 | 3.4 | 3.7 | -0.02 |
| Ischemic heart disease | 1.9 | 2.0 | 0.00 | 2.0 | 1.9 | 0.01 |
| Peripheral vascular disease | 2.0 | 2.2 | -0.01 | 2.0 | 2.0 | 0.00 |
| Pulmonary embolism | 1.0 | 1.0 | 0.00 | 1.0 | 1.0 | 0.00 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Venous thrombosis | 1.6 | 1.9 | -0.03 | 1.7 | 1.8 | -0.01 |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | 0.6 | 0.4 | 0.02 | 0.5 | 0.5 | 0.00 |
| Malignant neoplastic disease | 7.4 | 7.7 | -0.01 | 7.4 | 7.7 | -0.01 |
| Malignant tumor of breast | 1.6 | 1.6 | 0.00 | 1.6 | 1.6 | 0.00 |
| Malignant tumor of lung | 0.5 | 0.4 | 0.02 | 0.4 | 0.5 | -0.01 |
| Malignant tumor of urinary bladder | 0.2 | 0.3 | -0.01 | 0.2 | 0.3 | -0.01 |
| Primary malignant neoplasm of prostate | 0.3 | 0.2 | 0.03 | 0.3 | 0.2 | 0.02 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 35.5 | 36.7 | -0.02 | 35.8 | 36.0 | 0.00 |
| Antibacterials for systemic use | 41.3 | 44.0 | -0.05 | 42.9 | 43.4 | -0.01 |
| Antidepressants | 43.1 | 44.5 | -0.03 | 44.2 | 44.2 | 0.00 |
| Antiepileptics | 28.9 | 30.3 | -0.03 | 30.1 | 29.8 | 0.01 |
| Antiinflammatory and antirheumatic products | 46.2 | 47.0 | -0.02 | 46.7 | 46.7 | 0.00 |
| Antineoplastic agents | 39.6 | 38.0 | 0.03 | 38.4 | 39.1 | -0.02 |
| Antipsoriatics | 0.9 | 0.9 | 0.00 | 1.0 | 0.8 | 0.02 |
| Antithrombotic agents | 25.1 | 27.4 | -0.05 | 25.9 | 26.1 | 0.00 |
| Beta blocking agents | 26.4 | 28.5 | -0.05 | 27.4 | 27.6 | 0.00 |
| Calcium channel blockers | 19.5 | 20.2 | -0.02 | 19.9 | 19.9 | 0.00 |
| Diuretics | 35.3 | 35.5 | 0.00 | 35.6 | 35.4 | 0.00 |
| Drugs for acid related disorders | 49.4 | 51.4 | -0.04 | 50.5 | 50.9 | -0.01 |
| Drugs for obstructive airway diseases | 53.3 | 45.1 | 0.16 | 49.3 | 50.8 | -0.03 |
| Drugs used in diabetes | 14.6 | 15.9 | -0.04 | 15.2 | 15.4 | 0.00 |
| Immunosuppressants | 55.9 | 54.7 | 0.02 | 55.1 | 55.5 | -0.01 |
| Lipid modifying agents | 34.4 | 34.8 | -0.01 | 34.9 | 34.5 | 0.01 |
| Opioids | 34.8 | 36.9 | -0.04 | 36.1 | 35.4 | 0.02 |
| Psychostimulants, agents used for adhd and nootropics | 5.4 | 5.4 | 0.00 | 5.5 | 5.4 | 0.01 |

## S6.2.2. CCAE

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 15-19 | 0.5 | 0.4 | 0.00 | 0.5 | 0.5 | 0.00 |
| 20-24 | 1.4 | 1.3 | 0.01 | 1.4 | 1.4 | 0.00 |
| 25-29 | 2.2 | 2.1 | 0.01 | 2.2 | 2.2 | 0.00 |
| 30-34 | 4.0 | 3.7 | 0.02 | 4.0 | 3.9 | 0.01 |
| 35-39 | 6.8 | 6.5 | 0.02 | 6.8 | 6.7 | 0.00 |
| 40-44 | 9.5 | 8.9 | 0.02 | 9.3 | 9.3 | 0.00 |
| 45-49 | 13.1 | 13.2 | 0.00 | 13.2 | 13.3 | 0.00 |
| 50-54 | 18.3 | 17.9 | 0.01 | 18.1 | 18.0 | 0.00 |
| 55-59 | 21.5 | 22.0 | -0.01 | 21.5 | 21.8 | -0.01 |
| 60-64 | 20.6 | 21.8 | -0.03 | 21.1 | 21.1 | 0.00 |
| 65-69 | 2.0 | 2.1 | 0.00 | 2.0 | 2.0 | 0.00 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 62.5 | 50.7 | 0.24 | 58.0 | 57.5 | 0.01 |
| Attention deficit hyperactivity disorder | 1.4 | 1.5 | -0.01 | 1.4 | 1.5 | 0.00 |
| Chronic liver disease | 2.7 | 2.9 | -0.01 | 2.7 | 2.8 | -0.01 |
| Chronic obstructive lung disease | 5.6 | 4.4 | 0.06 | 5.0 | 5.2 | -0.01 |
| Dementia | 0.3 | 0.2 | 0.01 | 0.3 | 0.2 | 0.01 |
| Depressive disorder | 14.7 | 14.7 | 0.00 | 14.7 | 14.8 | 0.00 |
| Diabetes mellitus | 12.7 | 13.3 | -0.02 | 13.2 | 13.1 | 0.00 |
| Gastroesophageal reflux disease | 16.5 | 16.8 | -0.01 | 16.7 | 16.8 | 0.00 |
| Human immunodeficiency virus infection | 0.1 | 0.1 | 0.01 | 0.1 | 0.1 | 0.01 |
| Hyperlipidemia | 30.4 | 30.4 | 0.00 | 30.4 | 30.3 | 0.00 |
| Lesion of liver | 0.8 | 0.8 | -0.01 | 0.8 | 0.8 | 0.00 |
| Obesity | 9.4 | 10.8 | -0.05 | 10.2 | 10.1 | 0.00 |
| Osteoarthritis | 40.1 | 42.2 | -0.04 | 41.5 | 41.0 | 0.01 |
| Pneumonia | 6.8 | 4.3 | 0.11 | 5.7 | 5.5 | 0.01 |
| Psoriasis | 3.1 | 3.0 | 0.00 | 3.0 | 3.0 | 0.00 |
| Renal impairment | 3.9 | 4.3 | -0.02 | 4.2 | 4.1 | 0.00 |
| Rheumatoid arthritis | 83.6 | 82.2 | 0.04 | 82.9 | 83.0 | 0.00 |
| Ulcerative colitis | 0.7 | 0.7 | 0.00 | 0.7 | 0.7 | 0.00 |
| Urinary tract infectious disease | 13.6 | 14.3 | -0.02 | 14.0 | 13.9 | 0.00 |
| Viral hepatitis C | 0.7 | 0.9 | -0.02 | 0.8 | 0.9 | -0.01 |
| Visual system disorder | 36.8 | 37.0 | 0.00 | 36.9 | 37.1 | 0.00 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 1.5 | 1.9 | -0.03 | 1.7 | 1.8 | 0.00 |
| Cerebrovascular disease | 3.2 | 3.1 | 0.00 | 3.1 | 3.2 | -0.01 |
| Coronary arteriosclerosis | 4.8 | 5.0 | -0.01 | 5.0 | 4.9 | 0.00 |
| Heart disease | 17.3 | 18.2 | -0.02 | 17.8 | 17.9 | 0.00 |
| Heart failure | 2.5 | 2.3 | 0.01 | 2.5 | 2.4 | 0.01 |
| Ischemic heart disease | 3.2 | 3.2 | 0.00 | 3.3 | 3.1 | 0.01 |
| Peripheral vascular disease | 1.6 | 1.7 | -0.01 | 1.6 | 1.7 | -0.01 |
| Pulmonary embolism | 0.9 | 1.0 | -0.01 | 0.9 | 1.0 | -0.01 |
| Venous thrombosis | 1.6 | 1.8 | -0.01 | 1.7 | 1.8 | 0.00 |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | 1.2 | 1.1 | 0.01 | 1.2 | 1.1 | 0.00 |
| Malignant lymphoma | 0.7 | 0.6 | 0.00 | 0.6 | 0.6 | 0.00 |
| Malignant neoplastic disease | 7.6 | 7.5 | 0.00 | 7.6 | 7.5 | 0.00 |
| Malignant tumor of colon | 0.2 | 0.2 | -0.01 | 0.2 | 0.2 | 0.00 |
| Malignant tumor of lung | 0.2 | 0.2 | 0.01 | 0.2 | 0.2 | 0.01 |
| Malignant tumor of urinary bladder | 0.2 | 0.1 | 0.00 | 0.1 | 0.1 | 0.00 |
| Primary malignant neoplasm of prostate | 0.2 | 0.3 | -0.02 | 0.2 | 0.3 | -0.01 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 26.6 | 27.2 | -0.01 | 27.1 | 26.9 | 0.00 |
| Antibacterials for systemic use | 50.6 | 50.3 | 0.00 | 51.1 | 51.0 | 0.00 |
| Antidepressants | 43.3 | 42.0 | 0.02 | 43.0 | 42.8 | 0.00 |
| Antiinflammatory and antirheumatic products | 51.0 | 53.1 | -0.04 | 51.9 | 52.0 | 0.00 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Antipsoriatics | 0.9 | 0.9 | -0.01 | 0.9 | 0.9 | 0.00 |
| Antithrombotic agents | 8.9 | 10.8 | -0.06 | 9.8 | 9.9 | 0.00 |
| Beta blocking agents | 18.1 | 18.6 | -0.01 | 18.7 | 18.4 | 0.01 |
| Calcium channel blockers | 13.8 | 14.0 | -0.01 | 14.1 | 13.9 | 0.00 |
| Diuretics | 28.0 | 28.0 | 0.00 | 28.3 | 28.3 | 0.00 |
| Drugs for acid related disorders | 40.7 | 40.1 | 0.01 | 40.5 | 40.8 | -0.01 |
| Drugs for obstructive airway diseases | 43.6 | 37.0 | 0.13 | 41.1 | 40.7 | 0.01 |
| Drugs used in diabetes | 9.8 | 10.4 | -0.02 | 10.3 | 10.2 | 0.00 |
| Immunosuppressants | 52.5 | 49.8 | 0.05 | 51.1 | 51.2 | 0.00 |
| Lipid modifying agents | 22.5 | 22.9 | -0.01 | 22.7 | 22.6 | 0.00 |
| Opioids | 40.1 | 42.0 | -0.04 | 41.4 | 41.2 | 0.00 |
| Psycholeptics | 38.6 | 37.4 | 0.02 | 38.2 | 38.1 | 0.00 |
| Psychostimulants, agents used for adhd and nootropics | 7.3 | 7.1 | 0.01 | 7.3 | 7.4 | 0.00 |

## S6.2.3. Clinformatics

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 15-19 | 0.3 | 0.2 | 0.00 | 0.2 | 0.3 | 0.00 |
| 20-24 | 0.8 | 0.8 | 0.00 | 0.9 | 1.0 | -0.01 |
| 25-29 | 1.5 | 1.4 | 0.01 | 1.5 | 1.4 | 0.01 |
| 30-34 | 3.1 | 2.7 | 0.02 | 3.0 | 2.8 | 0.01 |
| 35-39 | 4.4 | 4.2 | 0.01 | 4.3 | 4.4 | -0.01 |
| 40-44 | 6.8 | 6.0 | 0.03 | 6.6 | 6.4 | 0.01 |
| 45-49 | 8.6 | 8.6 | 0.00 | 8.6 | 8.9 | -0.01 |
| 55-59 | 14.0 | 13.5 | 0.01 | 13.9 | 13.6 | 0.01 |
| 60-64 | 13.3 | 13.2 | 0.00 | 13.3 | 13.0 | 0.01 |
| 65-69 | 12.1 | 12.8 | -0.02 | 12.4 | 12.6 | -0.01 |
| 70-74 | 10.2 | 10.8 | -0.02 | 10.2 | 10.3 | 0.00 |
| 75-79 | 7.2 | 7.8 | -0.02 | 7.2 | 7.4 | -0.01 |
| 80-84 | 4.4 | 4.8 | -0.02 | 4.4 | 4.5 | -0.01 |
| 85-89 | 1.7 | 1.9 | -0.02 | 1.8 | 1.8 | 0.00 |
| Gender: female | 84.9 | 82.9 | 0.06 | 84.0 | 83.9 | 0.00 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 64.9 | 48.7 | 0.33 | 57.7 | 57.7 | 0.00 |
| Chronic obstructive lung disease | 14.8 | 11.0 | 0.11 | 13.0 | 13.1 | 0.00 |
| Crohn's disease | 0.7 | 0.7 | 0.01 | 0.8 | 0.6 | 0.02 |
| Dementia | 1.5 | 1.9 | -0.03 | 1.7 | 1.9 | -0.02 |
| Depressive disorder | 20.7 | 21.4 | -0.02 | 21.3 | 21.2 | 0.00 |
| Diabetes mellitus | 20.4 | 20.7 | -0.01 | 20.4 | 20.7 | -0.01 |
| Gastroesophageal reflux disease | 25.6 | 26.1 | -0.01 | 26.1 | 25.8 | 0.01 |
| Gastrointestinal hemorrhage | 4.2 | 4.5 | -0.02 | 4.4 | 4.5 | 0.00 |
| Human immunodeficiency virus infection | 0.2 | 0.2 | 0.00 | 0.2 | 0.2 | 0.00 |
| Hyperlipidemia | 46.3 | 46.7 | -0.01 | 46.4 | 46.3 | 0.00 |
| Hypertensive disorder | 53.9 | 55.5 | -0.03 | 54.6 | 54.8 | 0.00 |
| Lesion of liver | 1.1 | 1.3 | -0.02 | 1.1 | 1.3 | -0.02 |
| Osteoarthritis | 52.5 | 56.2 | -0.07 | 54.5 | 54.5 | 0.00 |
| Pneumonia | 10.7 | 7.2 | 0.12 | 9.0 | 9.0 | 0.00 |
| Psoriasis | 3.3 | 3.0 | 0.01 | 3.2 | 3.1 | 0.01 |
| Renal impairment | 11.1 | 12.4 | -0.04 | 11.5 | 11.7 | -0.01 |
| Rheumatoid arthritis | 84.5 | 83.3 | 0.03 | 84.0 | 84.0 | 0.00 |
| Schizophrenia | 0.2 | 0.2 | -0.01 | 0.2 | 0.2 | 0.00 |
| Ulcerative colitis | 0.7 | 0.8 | -0.01 | 0.8 | 0.8 | 0.00 |
| Urinary tract infectious disease | 17.6 | 19.3 | -0.04 | 18.6 | 18.5 | 0.00 |
| Viral hepatitis C | 1.1 | 1.4 | -0.03 | 1.2 | 1.3 | -0.01 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 4.7 | 6.0 | -0.06 | 5.2 | 5.5 | -0.01 |
| Cerebrovascular disease | 6.5 | 7.0 | -0.02 | 6.6 | 6.8 | -0.01 |
| Coronary arteriosclerosis | 11.4 | 12.1 | -0.02 | 11.6 | 11.8 | 0.00 |
| Heart disease | 29.8 | 31.2 | -0.03 | 30.4 | 30.6 | 0.00 |
| Heart failure | 7.5 | 7.4 | 0.00 | 7.6 | 7.4 | 0.01 |
| Ischemic heart disease | 7.0 | 7.3 | -0.01 | 7.1 | 7.3 | 0.00 |
| Peripheral vascular disease | 4.9 | 5.2 | -0.02 | 5.1 | 5.0 | 0.01 |
| Pulmonary embolism | 1.3 | 1.4 | -0.01 | 1.3 | 1.4 | 0.00 |
| Venous thrombosis | 2.5 | 2.9 | -0.02 | 2.6 | 2.8 | -0.01 |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | 1.6 | 1.5 | 0.01 | 1.7 | 1.5 | 0.01 |
| Malignant lymphoma | 0.9 | 0.9 | 0.00 | 0.9 | 0.9 | 0.01 |
| Malignant neoplasm of anorectum | 0.1 | 0.2 | -0.02 | 0.1 | 0.2 | -0.01 |
| Malignant neoplastic disease | 11.3 | 11.9 | -0.02 | 11.4 | 11.6 | -0.01 |
| Malignant tumor of breast | 2.7 | 2.7 | 0.00 | 2.6 | 2.7 | 0.00 |
| Malignant tumor of colon | 0.4 | 0.4 | -0.01 | 0.3 | 0.4 | -0.01 |
| Malignant tumor of lung | 0.6 | 0.4 | 0.02 | 0.5 | 0.5 | -0.01 |
| Malignant tumor of urinary bladder | 0.3 | 0.4 | -0.03 | 0.3 | 0.4 | -0.01 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Primary malignant neoplasm of prostate | 0.8 | 0.9 | -0.02 | 0.8 | 0.8 | 0.00 |
| Medication use | | | | | | |
| Antidepressants | 42.5 | 42.6 | 0.00 | 43.0 | 42.8 | 0.00 |
| Antiepileptics | 27.7 | 28.2 | -0.01 | 28.4 | 27.9 | 0.01 |
| Antiinflammatory and antirheumatic products | 44.2 | 45.7 | -0.03 | 45.5 | 45.2 | 0.01 |
| Antineoplastic agents | 35.2 | 33.1 | 0.04 | 33.4 | 34.2 | -0.02 |
| Antipsoriatics | 1.1 | 1.0 | 0.01 | 1.1 | 1.1 | 0.01 |
| Antithrombotic agents | 13.1 | 15.4 | -0.07 | 14.0 | 14.2 | 0.00 |
| Beta blocking agents | 25.8 | 27.1 | -0.03 | 26.5 | 26.4 | 0.00 |
| Drugs for acid related disorders | 41.8 | 41.9 | 0.00 | 41.9 | 41.8 | 0.00 |
| Drugs for obstructive airway diseases | 45.4 | 36.4 | 0.18 | 41.2 | 41.1 | 0.00 |
| Immunosuppressants | 49.8 | 47.4 | 0.05 | 48.3 | 48.4 | 0.00 |
| Lipid modifying agents | 32.4 | 33.2 | -0.02 | 32.6 | 32.6 | 0.00 |
| Opioids | 41.0 | 43.3 | -0.05 | 42.7 | 42.0 | 0.01 |
| Psycholeptics | 35.8 | 36.3 | -0.01 | 36.5 | 36.6 | 0.00 |
| Psychostimulants, agents used for adhd and nootropics | 5.2 | 4.8 | 0.02 | 5.3 | 5.0 | 0.02 |

## S6.2.4. CPRD

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 20-24 | <4.3 | 0.3 | 0.07 | 2.8 | 0.3 | 0.20 |
| 25-29 | <4.3 | 1.0 | -0.01 | 2.8 | 1.0 | 0.13 |
| 35-39 | <4.3 | 3.4 | 0.00 | 9.4 | 3.4 | 0.24 |
| 40-44 | <4.3 | 4.8 | -0.07 | 8.9 | 4.8 | 0.16 |
| 45-49 | 7.0 | 7.2 | -0.01 | 4.4 | 7.2 | -0.12 |
| 50-54 | 5.2 | 10.1 | -0.18 | 8.1 | 10.0 | -0.07 |
| 55-59 | 13.9 | 12.9 | 0.03 | 9.4 | 12.9 | -0.11 |
| 60-64 | 20.9 | 14.2 | 0.18 | 13.3 | 14.2 | -0.03 |
| 65-69 | 13.0 | 14.3 | -0.04 | 9.2 | 14.3 | -0.16 |
| 70-74 | 14.8 | 12.2 | 0.08 | 13.3 | 12.2 | 0.03 |
| 75-79 | 8.7 | 9.6 | -0.03 | 5.3 | 9.6 | -0.17 |
| 80-84 | 6.1 | 5.6 | 0.02 | 10.3 | 5.6 | 0.17 |
| 85-89 | <4.3 | 1.9 | -0.09 | <1.9 | 1.9 | -0.16 |
| 90-94 | <4.3 | 0.6 | 0.03 | 2.5 | 0.6 | 0.15 |
| Gender: female | 78.3 | 73.4 | 0.11 | 73.9 | 73.4 | 0.01 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 30.4 | 20.9 | 0.22 | 29.2 | 21.1 | 0.19 |
| Chronic obstructive lung disease | 13.0 | 3.7 | 0.34 | 6.7 | 3.8 | 0.13 |
| Depressive disorder | <4.3 | 2.5 | 0.06 | <1.9 | 2.5 | -0.10 |
| Diabetes mellitus | 4.3 | 2.3 | 0.11 | 3.6 | 2.3 | 0.08 |
| Gastroesophageal reflux disease | <4.3 | 0.7 | 0.02 | <1.9 | 0.7 | -0.06 |
| Gastrointestinal hemorrhage | <4.3 | 1.6 | -0.07 | <1.9 | 1.6 | -0.14 |
| Hyperlipidemia | <4.3 | 0.9 | -0.01 | <1.9 | 0.9 | -0.08 |
| Hypertensive disorder | <4.3 | 2.7 | -0.01 | <1.9 | 2.7 | -0.14 |
| Lesion of liver | <4.3 | 0.1 | 0.11 | <1.9 | <0.1 | 0.04 |
| Obesity | <4.3 | 0.3 | 0.07 | <1.9 | 0.3 | -0.01 |
| Osteoarthritis | 6.1 | 4.4 | 0.07 | 8.1 | 4.5 | 0.15 |
| Pneumonia | <4.3 | 1.4 | 0.09 | <1.9 | 1.4 | -0.05 |
| Renal impairment | <4.3 | 3.5 | -0.18 | 2.5 | 3.5 | -0.06 |
| Rheumatoid arthritis | 45.2 | 36.8 | 0.17 | 36.4 | 36.9 | -0.01 |
| Urinary tract infectious disease | <4.3 | 5.2 | -0.25 | <1.9 | 5.2 | -0.30 |
| Visual system disorder | 7.0 | 8.3 | -0.05 | 9.4 | 8.3 | 0.04 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | <4.3 | 1.1 | 0.12 | <1.9 | 1.1 | -0.03 |
| Heart disease | <4.3 | 3.8 | -0.02 | <1.9 | 3.8 | -0.18 |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | <4.3 | <0.1 | 0.12 | <1.9 | <0.1 | 0.05 |
| Malignant lymphoma | <4.3 | <0.1 | 0.12 | <1.9 | <0.1 | 0.05 |
| Malignant neoplastic disease | <4.3 | 1.8 | 0.11 | 3.3 | 1.8 | 0.10 |
| Malignant tumor of breast | <4.3 | 0.1 | 0.10 | 2.5 | 0.1 | 0.20 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 28.7 | 26.5 | 0.05 | 22.2 | 26.5 | -0.10 |
| Antibacterials for systemic use | 73.9 | 44.5 | 0.63 | 49.2 | 45.0 | 0.08 |
| Antidepressants | 38.3 | 31.8 | 0.14 | 29.7 | 31.9 | -0.05 |
| Antiepileptics | 15.7 | 8.7 | 0.21 | 5.0 | 8.8 | -0.15 |
| Antiinflammatory and antirheumatic products | 53.0 | 52.1 | 0.02 | 50.3 | 52.2 | -0.04 |
| Antineoplastic agents | 37.4 | 52.7 | -0.31 | 45.3 | 52.5 | -0.14 |
| Antipsoriatics | <4.3 | 0.9 | -0.01 | 2.5 | 0.9 | 0.12 |
| Antithrombotic agents | 27.0 | 23.8 | 0.07 | 15.8 | 23.9 | -0.20 |
| Beta blocking agents | 10.4 | 16.7 | -0.18 | 7.8 | 16.7 | -0.27 |
| Calcium channel blockers | 18.3 | 18.8 | -0.02 | 11.9 | 18.8 | -0.19 |
| Diuretics | 18.3 | 23.3 | -0.12 | 15.0 | 23.3 | -0.21 |
| Drugs for acid related disorders | 74.8 | 63.9 | 0.24 | 64.7 | 64.1 | 0.01 |
| Drugs for obstructive airway diseases | 69.6 | 32.3 | 0.80 | 29.2 | 33.0 | -0.08 |
| Drugs used in diabetes | 10.4 | 8.8 | 0.06 | 10.3 | 8.8 | 0.05 |
| Immunosuppressants | 47.0 | 58.1 | -0.22 | 50.6 | 57.9 | -0.15 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Lipid modifying agents | 32.2 | 28.3 | 0.08 | 16.9 | 28.4 | -0.27 |
| Opioids | 46.1 | 39.2 | 0.14 | 45.3 | 39.3 | 0.12 |
| Psycholeptics | 20.9 | 19.9 | 0.02 | 15.6 | 19.9 | -0.11 |

## S6.2.5. DAGermany

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 20-24 | <5.6 | <2.5 | 0.02 | <5.6 | <2.5 | 0.02 |
| 30-34 | <5.6 | 4.0 | -0.10 | <5.6 | 4.0 | -0.10 |
| 35-39 | 6.7 | 4.5 | 0.10 | 6.7 | 4.5 | 0.10 |
| 40-44 | 12.4 | 4.0 | 0.31 | 12.4 | 4.0 | 0.31 |
| 45-49 | 7.9 | 9.4 | -0.06 | 7.9 | 9.4 | -0.06 |
| 50-54 | 13.5 | 9.4 | 0.13 | 13.5 | 9.4 | 0.13 |
| 55-59 | 16.9 | 13.4 | 0.10 | 16.9 | 13.4 | 0.10 |
| 60-64 | 12.4 | 10.9 | 0.05 | 12.4 | 10.9 | 0.05 |
| 65-69 | 10.1 | 12.4 | -0.07 | 10.1 | 12.4 | -0.07 |
| 70-74 | 7.9 | 9.4 | -0.06 | 7.9 | 9.4 | -0.06 |
| 75-79 | 5.6 | 6.9 | -0.05 | 5.6 | 6.9 | -0.05 |
| 80-84 | <5.6 | 6.9 | -0.22 | <5.6 | 6.9 | -0.22 |
| Gender: female | 89.9 | 79.2 | 0.30 | 89.9 | 79.2 | 0.30 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 61.8 | 55.4 | 0.13 | 61.8 | 55.4 | 0.13 |
| Chronic liver disease | <5.6 | <2.5 | -0.07 | <5.6 | <2.5 | -0.07 |
| Chronic obstructive lung disease | 6.7 | 11.4 | -0.16 | 6.7 | 11.4 | -0.16 |
| Depressive disorder | 14.6 | 10.4 | 0.13 | 14.6 | 10.4 | 0.13 |
| Diabetes mellitus | 5.6 | 13.4 | -0.27 | 5.6 | 13.4 | -0.27 |
| Hyperlipidemia | 9.0 | 13.4 | -0.14 | 9.0 | 13.4 | -0.14 |
| Hypertensive disorder | 28.1 | 40.1 | -0.26 | 28.1 | 40.1 | -0.25 |
| Obesity | <5.6 | 5.0 | -0.02 | <5.6 | 5.0 | -0.02 |
| Osteoarthritis | 11.2 | 13.4 | -0.06 | 11.2 | 13.4 | -0.06 |
| Pneumonia | <5.6 | 6.9 | -0.22 | <5.6 | 6.9 | -0.22 |
| Psoriasis | <5.6 | <2.5 | 0.15 | <5.6 | <2.5 | 0.15 |
| Renal impairment | <5.6 | 4.5 | -0.06 | <5.6 | 4.5 | -0.06 |
| Rheumatoid arthritis | 56.2 | 57.9 | -0.04 | 56.2 | 57.9 | -0.04 |
| Urinary tract infectious disease | 5.6 | 9.9 | -0.16 | 5.6 | 9.9 | -0.16 |
| Visual system disorder | 11.2 | 16.8 | -0.16 | 11.2 | 16.8 | -0.16 |
| Medical history: Cardiovascular disease | | | | | | |
| Cerebrovascular disease | <5.6 | <2.5 | 0.14 | <5.6 | <2.5 | 0.14 |
| Coronary arteriosclerosis | <5.6 | <2.5 | 0.06 | <5.6 | <2.5 | 0.06 |
| Heart disease | 11.2 | 21.8 | -0.29 | 11.2 | 21.8 | -0.29 |
| Heart failure | <5.6 | 6.9 | -0.30 | <5.6 | 6.9 | -0.30 |
| Ischemic heart disease | <5.6 | 7.9 | -0.14 | <5.6 | 7.9 | -0.14 |
| Peripheral vascular disease | <5.6 | 2.5 | -0.10 | <5.6 | 2.5 | -0.10 |
| Venous thrombosis | <5.6 | 5.9 | -0.12 | <5.6 | 5.9 | -0.12 |
| Medical history: Neoplasms | | | | | | |
| Malignant neoplastic disease | <5.6 | 6.4 | -0.08 | <5.6 | 6.4 | -0.08 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 29.2 | 39.6 | -0.22 | 29.2 | 39.6 | -0.22 |
| Antibacterials for systemic use | 29.2 | 37.6 | -0.18 | 29.2 | 37.6 | -0.18 |
| Antidepressants | 16.9 | 18.8 | -0.05 | 16.9 | 18.8 | -0.05 |
| Antiepileptics | <5.6 | 7.9 | -0.14 | <5.6 | 7.9 | -0.14 |
| Antiinflammatory and antirheumatic products | 43.8 | 46.5 | -0.06 | 43.8 | 46.5 | -0.05 |
| Antineoplastic agents | 29.2 | 27.2 | 0.04 | 29.2 | 27.2 | 0.04 |
| Antithrombotic agents | 13.5 | 26.2 | -0.32 | 13.5 | 26.2 | -0.32 |
| Beta blocking agents | 25.8 | 35.6 | -0.21 | 25.8 | 35.6 | -0.21 |
| Calcium channel blockers | 16.9 | 18.3 | -0.04 | 16.9 | 18.3 | -0.04 |
| Diuretics | 19.1 | 39.1 | -0.45 | 19.1 | 39.1 | -0.45 |
| Drugs for acid related disorders | 65.2 | 69.8 | -0.10 | 65.2 | 69.8 | -0.10 |
| Drugs for obstructive airway diseases | 19.1 | 21.8 | -0.07 | 19.1 | 21.8 | -0.07 |
| Drugs used in diabetes | 6.7 | 12.9 | -0.21 | 6.7 | 12.9 | -0.21 |
| Immunosuppressants | 37.1 | 32.7 | 0.09 | 37.1 | 32.7 | 0.09 |
| Lipid modifying agents | 5.6 | 17.8 | -0.39 | 5.6 | 17.8 | -0.38 |
| Opioids | 20.2 | 27.2 | -0.16 | 20.2 | 27.2 | -0.16 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Psycholeptics | 16.9 | 10.4 | 0.19 | 16.9 | 10.4 | 0.19 |

## S6.2.6. IMRD

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 25-29 | <4.5 | 0.9 | 0.13 | 3.6 | 0.9 | 0.18 |
| 30-34 | <4.5 | 1.7 | -0.07 | 6.7 | 1.7 | 0.25 |
| 35-39 | 4.5 | 3.1 | 0.07 | 10.0 | 3.1 | 0.28 |
| 40-44 | <4.5 | 4.3 | -0.09 | 3.3 | 4.3 | -0.05 |
| 45-49 | 5.4 | 7.3 | -0.08 | 4.0 | 7.2 | -0.14 |
| 50-54 | <4.5 | 10.1 | -0.26 | 3.8 | 10.1 | -0.25 |
| 55-59 | 9.8 | 12.4 | -0.08 | 2.6 | 12.4 | -0.38 |
| 60-64 | 17.9 | 14.6 | 0.09 | 16.6 | 14.5 | 0.06 |
| 65-69 | 13.4 | 14.6 | -0.04 | 19.7 | 14.7 | 0.13 |
| 70-74 | 19.6 | 12.7 | 0.19 | 14.2 | 12.7 | 0.04 |
| 75-79 | 9.8 | 9.5 | 0.01 | 6.9 | 9.5 | -0.10 |
| 80-84 | 8.0 | 5.7 | 0.09 | 8.3 | 5.7 | 0.10 |
| 85-89 | <4.5 | 2.0 | -0.10 | <1.6 | 2.1 | -0.17 |
| 90-94 | <4.5 | 0.5 | 0.04 | <1.6 | 0.5 | -0.05 |
| Gender: female | 78.6 | 73.8 | 0.11 | 74.1 | 73.8 | 0.01 |
| Race | | | | | | |
| race = White | 30.4 | 30.8 | -0.01 | 48.2 | 30.7 | 0.36 |
| race = Asian Indian | <4.5 | 0.6 | 0.03 | 2.9 | 0.6 | 0.17 |
| race = Pakistani | <4.5 | 0.4 | 0.07 | 1.7 | 0.4 | 0.13 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 29.5 | 20.8 | 0.20 | 20.6 | 20.9 | -0.01 |
| Chronic obstructive lung disease | 17.0 | 3.7 | 0.45 | 5.9 | 3.9 | 0.09 |
| Depressive disorder | 4.5 | 2.5 | 0.11 | 2.6 | 2.5 | 0.00 |
| Diabetes mellitus | 8.0 | 2.1 | 0.27 | 8.3 | 2.1 | 0.28 |
| Gastroesophageal reflux disease | <4.5 | 0.6 | 0.03 | <1.6 | 0.6 | -0.06 |
| Gastrointestinal hemorrhage | <4.5 | 1.4 | -0.05 | <1.6 | 1.4 | -0.13 |
| Hyperlipidemia | <4.5 | 1.0 | -0.01 | <1.6 | 1.0 | -0.10 |
| Hypertensive disorder | <4.5 | 2.6 | 0.00 | <1.6 | 2.6 | -0.15 |
| Obesity | <4.5 | 0.4 | 0.14 | 3.1 | 0.4 | 0.21 |
| Osteoarthritis | <4.5 | 4.6 | -0.05 | 7.4 | 4.6 | 0.12 |
| Pneumonia | <4.5 | 1.1 | 0.17 | <1.6 | 1.1 | -0.02 |
| Renal impairment | <4.5 | 3.1 | -0.03 | <1.6 | 3.2 | -0.18 |
| Rheumatoid arthritis | 33.9 | 37.3 | -0.07 | 42.0 | 37.4 | 0.09 |
| Urinary tract infectious disease | <4.5 | 4.5 | -0.16 | 5.2 | 4.6 | 0.03 |
| Visual system disorder | 9.8 | 8.3 | 0.05 | 10.2 | 8.3 | 0.06 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | <4.5 | 1.1 | -0.02 | <1.6 | 1.1 | -0.11 |
| Cerebrovascular disease | <4.5 | 0.6 | 0.11 | <1.6 | 0.6 | -0.02 |
| Heart disease | <4.5 | 3.8 | -0.12 | <1.6 | 3.8 | -0.23 |
| Venous thrombosis | <4.5 | 0.8 | 0.01 | 6.7 | 0.8 | 0.31 |
| Medical history: Neoplasms | | | | | | |
| Malignant lymphoma | <4.5 | 0.1 | 0.11 | <1.6 | 0.1 | 0.03 |
| Malignant neoplastic disease | <4.5 | 1.9 | 0.06 | 5.5 | 1.9 | 0.19 |
| Malignant tumor of breast | <4.5 | 0.2 | 0.09 | 5.0 | 0.2 | 0.30 |
| Medication use | | | | | | |
| Antibacterials for systemic use | 9.8 | 4.6 | 0.20 | 2.6 | 4.6 | -0.11 |
| Antidepressants | <4.5 | 1.1 | 0.16 | <1.6 | 1.1 | -0.02 |
| Antiinflammatory and antirheumatic products | <4.5 | 1.2 | -0.03 | <1.6 | 1.2 | -0.11 |
| Antineoplastic agents | <4.5 | 1.6 | -0.06 | <1.6 | 1.6 | -0.14 |
| Antithrombotic agents | <4.5 | 1.4 | 0.10 | 3.3 | 1.4 | 0.13 |
| Beta blocking agents | <4.5 | 0.5 | 0.05 | <1.6 | 0.5 | -0.04 |
| Diuretics | <4.5 | 1.0 | -0.01 | <1.6 | 1.0 | -0.10 |
| Drugs for acid related disorders | <4.5 | 1.8 | -0.08 | <1.6 | 1.8 | -0.16 |
| Drugs for obstructive airway diseases | <4.5 | 0.7 | 0.02 | <1.6 | 0.7 | -0.07 |
| Immunosuppressants | <4.5 | 1.8 | -0.08 | <1.6 | 1.8 | -0.16 |
| Lipid modifying agents | <4.5 | 1.3 | 0.10 | 3.3 | 1.3 | 0.13 |

## S6.2.7. IPCI

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 20-24 | <4.1 | <1.0 | 0.05 | <4.1 | <1.0 | 0.05 |
| 35-39 | <4.1 | <1.0 | 0.19 | <4.1 | <1.0 | 0.19 |
| 40-44 | 6.6 | 4.6 | 0.09 | 6.6 | 4.6 | 0.09 |
| 45-49 | 9.1 | 6.6 | 0.09 | 9.1 | 6.6 | 0.09 |
| 50-54 | 7.4 | 6.8 | 0.02 | 7.4 | 6.8 | 0.02 |
| 55-59 | 8.3 | 11.0 | -0.09 | 8.3 | 11.0 | -0.09 |
| 60-64 | 13.2 | 14.9 | -0.05 | 13.2 | 14.9 | -0.05 |
| 65-69 | 16.5 | 10.6 | 0.18 | 16.5 | 10.6 | 0.18 |
| 70-74 | 12.4 | 13.5 | -0.03 | 12.4 | 13.5 | -0.03 |
| 75-79 | 9.9 | 11.8 | -0.06 | 9.9 | 11.8 | -0.06 |
| 80-84 | 8.3 | 8.9 | -0.02 | 8.3 | 8.9 | -0.02 |
| 85-89 | <4.1 | 6.8 | -0.16 | <4.1 | 6.8 | -0.16 |
| Gender: female | 65.3 | 72.0 | -0.15 | 65.3 | 72.0 | -0.15 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 37.2 | 31.9 | 0.11 | 37.2 | 31.9 | 0.11 |
| Depressive disorder | <4.1 | 3.7 | -0.02 | <4.1 | 3.7 | -0.02 |
| Diabetes mellitus | 6.6 | 8.3 | -0.06 | 6.6 | 8.3 | -0.06 |
| Gastrointestinal hemorrhage | <4.1 | 1.7 | 0.06 | <4.1 | 1.7 | 0.06 |
| Hyperlipidemia | <4.1 | 2.7 | -0.14 | <4.1 | 2.7 | -0.14 |
| Hypertensive disorder | 19.0 | 17.6 | 0.04 | 19.0 | 17.6 | 0.04 |
| Obesity | <4.1 | 1.4 | 0.12 | <4.1 | 1.4 | 0.12 |
| Osteoarthritis | 4.1 | 7.0 | -0.13 | 4.1 | 7.0 | -0.13 |
| Pneumonia | 14.9 | 14.9 | 0.00 | 14.9 | 14.9 | 0.00 |
| Renal impairment | <4.1 | 3.5 | -0.06 | <4.1 | 3.5 | -0.06 |
| Ulcerative colitis | <4.1 | <1.0 | 0.15 | <4.1 | <1.0 | 0.15 |
| Urinary tract infectious disease | 9.9 | 18.8 | -0.26 | 9.9 | 18.8 | -0.26 |
| Visual system disorder | 21.5 | 15.9 | 0.14 | 21.5 | 15.9 | 0.14 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | <4.1 | 4.1 | -0.04 | <4.1 | 4.1 | -0.04 |
| Cerebrovascular disease | <4.1 | 2.7 | -0.01 | <4.1 | 2.7 | -0.01 |
| Heart disease | 12.4 | 14.5 | -0.06 | 12.4 | 14.5 | -0.06 |
| Heart failure | 4.1 | 3.5 | 0.03 | 4.1 | 3.5 | 0.03 |
| Ischemic heart disease | 4.1 | 6.0 | -0.08 | 4.1 | 6.0 | -0.08 |
| Peripheral vascular disease | <4.1 | 5.0 | -0.25 | <4.1 | 5.0 | -0.25 |
| Venous thrombosis | <4.1 | 1.0 | -0.02 | <4.1 | <1.0 | -0.02 |
| Medical history: Neoplasms | | | | | | |
| Malignant neoplastic disease | 7.4 | 7.7 | -0.01 | 7.4 | 7.7 | -0.01 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 34.7 | 35.4 | -0.02 | 34.7 | 35.4 | -0.01 |
| Antibacterials for systemic use | 48.8 | 47.0 | 0.04 | 48.8 | 47.0 | 0.04 |
| Antidepressants | 18.2 | 19.9 | -0.04 | 18.2 | 19.9 | -0.04 |
| Antiepileptics | 9.1 | 8.9 | 0.01 | 9.1 | 8.9 | 0.01 |
| Antiinflammatory and antirheumatic products | 36.4 | 41.8 | -0.11 | 36.4 | 41.8 | -0.11 |
| Antineoplastic agents | 46.3 | 48.4 | -0.04 | 46.3 | 48.4 | -0.04 |
| Antipsoriatics | <4.1 | 1.9 | -0.09 | <4.1 | 1.9 | -0.09 |
| Antithrombotic agents | 30.6 | 32.5 | -0.04 | 30.6 | 32.5 | -0.04 |
| Beta blocking agents | 27.3 | 31.9 | -0.10 | 27.3 | 31.9 | -0.10 |
| Calcium channel blockers | 19.8 | 20.3 | -0.01 | 19.8 | 20.3 | -0.01 |
| Diuretics | 32.2 | 32.9 | -0.02 | 32.2 | 32.9 | -0.02 |
| Drugs for acid related disorders | 77.7 | 80.3 | -0.06 | 77.7 | 80.3 | -0.06 |
| Drugs for obstructive airway diseases | 54.5 | 42.0 | 0.25 | 54.5 | 42.0 | 0.25 |
| Drugs used in diabetes | 13.2 | 12.0 | 0.04 | 13.2 | 12.0 | 0.04 |
| Immunosuppressants | 53.7 | 52.4 | 0.03 | 53.7 | 52.4 | 0.03 |
| Lipid modifying agents | 34.7 | 38.1 | -0.07 | 34.7 | 38.1 | -0.07 |
| Opioids | 24.8 | 28.8 | -0.09 | 24.8 | 28.8 | -0.09 |
| Psycholeptics | 33.9 | 27.3 | 0.14 | 33.9 | 27.3 | 0.14 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Psychostimulants, agents used for adhd and nootropics | <4.1 | <1.0 | 0.15 | <4.1 | <1.0 | 0.15 |

## S6.2.8. MDCD

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 15-19 | 1.3 | 1.5 | -0.02 | 1.2 | 1.5 | -0.02 |
| 20-24 | 2.4 | 2.3 | 0.01 | 2.7 | 2.3 | 0.03 |
| 25-29 | 4.5 | 4.9 | -0.02 | 5.1 | 4.5 | 0.03 |
| 30-34 | 6.1 | 7.4 | -0.05 | 6.9 | 7.0 | -0.01 |
| 35-39 | 9.1 | 10.2 | -0.04 | 9.0 | 9.5 | -0.02 |
| 40-44 | 10.5 | 11.1 | -0.02 | 10.8 | 10.7 | 0.00 |
| 45-49 | 13.1 | 13.6 | -0.02 | 12.8 | 13.7 | -0.03 |
| 50-54 | 16.5 | 15.3 | 0.03 | 16.3 | 16.0 | 0.01 |
| 55-59 | 15.6 | 15.8 | -0.01 | 15.5 | 16.2 | -0.02 |
| 60-64 | 12.3 | 10.8 | 0.05 | 11.8 | 11.0 | 0.02 |
| 65-69 | 4.3 | 3.2 | 0.06 | 4.1 | 3.5 | 0.03 |
| 70-74 | 2.2 | 1.7 | 0.04 | 2.0 | 1.8 | 0.02 |
| 85-89 | 0.3 | 0.4 | 0.00 | 0.3 | 0.4 | -0.02 |
| Gender: female | 89.1 | 89.7 | -0.02 | 89.3 | 89.9 | -0.02 |
| Race | | | | | | |
| race = Black or African American | 27.4 | 29.9 | -0.06 | 27.5 | 28.0 | -0.01 |
| race = White | 57.3 | 54.2 | 0.06 | 56.9 | 56.3 | 0.01 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 69.7 | 54.0 | 0.33 | 61.4 | 63.4 | -0.04 |
| Attention deficit hyperactivity disorder | 2.6 | 2.6 | 0.00 | 2.7 | 2.7 | 0.00 |
| Chronic liver disease | 6.5 | 6.8 | -0.01 | 6.8 | 6.8 | 0.00 |
| Chronic obstructive lung disease | 28.0 | 20.4 | 0.18 | 22.3 | 25.6 | -0.08 |
| Crohn's disease | 1.1 | 0.7 | 0.04 | 1.1 | 0.7 | 0.04 |
| Dementia | 1.2 | 1.5 | -0.03 | 1.2 | 1.6 | -0.03 |
| Depressive disorder | 39.9 | 41.4 | -0.03 | 40.9 | 41.1 | 0.00 |
| Diabetes mellitus | 26.6 | 25.6 | 0.02 | 26.3 | 26.1 | 0.00 |
| Gastroesophageal reflux disease | 35.4 | 33.9 | 0.03 | 34.5 | 34.6 | 0.00 |
| Gastrointestinal hemorrhage | 5.0 | 5.8 | -0.04 | 5.1 | 5.8 | -0.03 |
| Human immunodeficiency virus infection | 0.3 | 0.7 | -0.06 | 0.5 | 0.6 | -0.02 |
| Hyperlipidemia | 38.8 | 35.6 | 0.07 | 37.9 | 37.0 | 0.02 |
| Hypertensive disorder | 59.2 | 58.0 | 0.03 | 59.0 | 59.4 | -0.01 |
| Lesion of liver | 1.3 | 1.7 | -0.03 | 1.5 | 1.9 | -0.03 |
| Obesity | 23.3 | 24.8 | -0.04 | 23.6 | 24.0 | -0.01 |
| Osteoarthritis | 55.2 | 55.1 | 0.00 | 54.6 | 55.7 | -0.02 |
| Pneumonia | 15.9 | 9.1 | 0.21 | 12.1 | 12.4 | -0.01 |
| Psoriasis | 2.1 | 1.9 | 0.01 | 2.2 | 2.1 | 0.00 |
| Renal impairment | 11.6 | 12.0 | -0.01 | 10.8 | 12.0 | -0.04 |
| Rheumatoid arthritis | 81.8 | 83.1 | -0.03 | 82.4 | 83.2 | -0.02 |
| Schizophrenia | 1.6 | 1.7 | -0.01 | 1.7 | 1.7 | 0.00 |
| Ulcerative colitis | 0.5 | 0.6 | -0.01 | 0.7 | 0.6 | 0.01 |
| Urinary tract infectious disease | 20.6 | 22.1 | -0.04 | 21.3 | 21.2 | 0.00 |
| Viral hepatitis C | 4.8 | 5.5 | -0.03 | 5.5 | 5.6 | 0.00 |
| Visual system disorder | 50.0 | 50.4 | -0.01 | 50.1 | 51.1 | -0.02 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 3.1 | 2.8 | 0.02 | 2.8 | 3.0 | -0.01 |
| Cerebrovascular disease | 5.9 | 5.8 | 0.00 | 6.2 | 6.1 | 0.00 |
| Coronary arteriosclerosis | 11.3 | 9.0 | 0.08 | 9.8 | 10.0 | 0.00 |
| Heart disease | 35.0 | 31.0 | 0.09 | 32.2 | 33.2 | -0.02 |
| Heart failure | 10.9 | 9.2 | 0.06 | 9.4 | 10.5 | -0.04 |
| Ischemic heart disease | 9.4 | 6.9 | 0.09 | 8.4 | 7.5 | 0.04 |
| Peripheral vascular disease | 4.6 | 5.2 | -0.03 | 4.3 | 5.2 | -0.04 |
| Pulmonary embolism | 2.6 | 2.8 | -0.01 | 2.4 | 2.9 | -0.04 |
| Venous thrombosis | 3.5 | 3.9 | -0.02 | 3.6 | 4.0 | -0.02 |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | 1.4 | 1.5 | 0.00 | 1.5 | 1.5 | -0.01 |
| Malignant lymphoma | 0.5 | 0.5 | 0.01 | 0.6 | 0.4 | 0.03 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Malignant neoplasm of anorectum | <0.1 | 0.2 | -0.03 | 0.1 | 0.2 | -0.02 |
| Malignant neoplastic disease | 7.2 | 7.0 | 0.01 | 7.1 | 6.9 | 0.01 |
| Malignant tumor of lung | 0.5 | 0.6 | -0.01 | 0.4 | 0.6 | -0.03 |
| Malignant tumor of urinary bladder | <0.1 | <0.1 | 0.02 | <0.1 | <0.1 | 0.02 |
| Primary malignant neoplasm of prostate | <0.1 | 0.2 | -0.02 | <0.1 | 0.1 | -0.01 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 36.3 | 34.4 | 0.04 | 35.0 | 35.0 | 0.00 |
| Antibacterials for systemic use | 60.5 | 59.7 | 0.02 | 60.1 | 59.8 | 0.00 |
| Antidepressants | 62.3 | 61.3 | 0.02 | 62.3 | 62.4 | 0.00 |
| Antiepileptics | 51.0 | 49.8 | 0.02 | 51.1 | 50.2 | 0.02 |
| Antiinflammatory and antirheumatic products | 56.8 | 59.4 | -0.05 | 59.3 | 58.0 | 0.03 |
| Antineoplastic agents | 36.9 | 34.2 | 0.06 | 36.0 | 35.6 | 0.01 |
| Antipsoriatics | 0.7 | 1.0 | -0.03 | 0.6 | 1.1 | -0.05 |
| Antithrombotic agents | 22.8 | 22.6 | 0.00 | 22.1 | 22.9 | -0.02 |
| Beta blocking agents | 28.6 | 27.3 | 0.03 | 27.7 | 28.3 | -0.01 |
| Calcium channel blockers | 23.4 | 22.0 | 0.03 | 22.3 | 22.7 | -0.01 |
| Diuretics | 40.4 | 37.6 | 0.06 | 39.1 | 39.2 | 0.00 |
| Drugs for acid related disorders | 61.7 | 59.8 | 0.04 | 60.3 | 61.6 | -0.03 |
| Drugs for obstructive airway diseases | 65.5 | 53.5 | 0.25 | 59.0 | 60.3 | -0.03 |
| Drugs used in diabetes | 19.8 | 18.8 | 0.02 | 19.5 | 18.9 | 0.02 |
| Immunosuppressants | 53.1 | 49.4 | 0.07 | 51.5 | 51.8 | 0.00 |
| Lipid modifying agents | 32.0 | 30.2 | 0.04 | 31.0 | 31.3 | -0.01 |
| Opioids | 66.6 | 68.3 | -0.04 | 67.6 | 68.7 | -0.02 |
| Psycholeptics | 58.0 | 56.7 | 0.03 | 57.4 | 57.6 | 0.00 |
| Psychostimulants, agents used for adhd and nootropics | 8.3 | 7.7 | 0.02 | 8.2 | 7.7 | 0.02 |

## S6.2.9. MDCR

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 45-49 | 0.1 | 0.1 | 0.02 | 0.1 | 0.1 | 0.02 |
| 55-59 | 1.0 | 1.1 | 0.00 | 1.0 | 1.2 | -0.02 |
| 60-64 | 2.1 | 2.2 | -0.01 | 2.2 | 2.3 | -0.01 |
| 65-69 | 29.2 | 28.1 | 0.03 | 29.0 | 28.7 | 0.01 |
| 70-74 | 27.7 | 28.2 | -0.01 | 27.8 | 28.0 | 0.00 |
| 75-79 | 19.6 | 20.2 | -0.01 | 19.8 | 20.0 | 0.00 |
| 80-84 | 12.3 | 13.0 | -0.02 | 12.4 | 12.6 | -0.01 |
| 85-89 | 5.8 | 5.3 | 0.02 | 5.7 | 5.3 | 0.02 |
| 90-94 | 1.4 | 1.4 | 0.00 | 1.4 | 1.3 | 0.01 |
| 95-99 | 0.1 | 0.2 | -0.01 | 0.1 | 0.2 | -0.02 |
| Gender: female | 78.1 | 74.0 | 0.10 | 75.7 | 75.7 | 0.00 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 53.3 | 34.2 | 0.39 | 42.5 | 44.4 | -0.04 |
| Attention deficit hyperactivity disorder | 0.1 | 0.2 | -0.01 | 0.1 | 0.2 | -0.01 |
| Chronic liver disease | 1.7 | 2.0 | -0.03 | 1.7 | 2.1 | -0.03 |
| Chronic obstructive lung disease | 20.3 | 14.7 | 0.15 | 16.7 | 18.1 | -0.04 |
| Crohn's disease | 0.6 | 0.5 | 0.02 | 0.7 | 0.5 | 0.03 |
| Dementia | 2.1 | 2.3 | -0.02 | 2.2 | 2.3 | 0.00 |
| Depressive disorder | 10.4 | 11.0 | -0.02 | 10.3 | 11.0 | -0.02 |
| Diabetes mellitus | 20.7 | 20.7 | 0.00 | 20.6 | 20.4 | 0.00 |
| Gastroesophageal reflux disease | 19.4 | 18.8 | 0.02 | 19.2 | 19.7 | -0.01 |
| Gastrointestinal hemorrhage | 4.4 | 5.1 | -0.03 | 4.6 | 5.0 | -0.02 |
| Human immunodeficiency virus infection | <0.1 | 0.1 | -0.02 | <0.1 | 0.1 | -0.02 |
| Hyperlipidemia | 39.1 | 40.0 | -0.02 | 39.8 | 39.7 | 0.00 |
| Hypertensive disorder | 62.2 | 61.6 | 0.01 | 61.9 | 61.4 | 0.01 |
| Lesion of liver | 0.9 | 1.1 | -0.02 | 0.9 | 1.1 | -0.02 |
| Obesity | 5.5 | 6.3 | -0.04 | 5.8 | 6.2 | -0.02 |
| Osteoarthritis | 53.3 | 57.7 | -0.09 | 56.1 | 55.5 | 0.01 |
| Pneumonia | 14.3 | 9.2 | 0.16 | 11.6 | 12.0 | -0.01 |
| Psoriasis | 2.0 | 2.4 | -0.03 | 2.2 | 2.4 | -0.02 |
| Renal impairment | 12.6 | 12.5 | 0.00 | 12.7 | 12.5 | 0.01 |
| Rheumatoid arthritis | 87.0 | 86.5 | 0.02 | 86.7 | 86.6 | 0.00 |
| Schizophrenia | <0.1 | 0.1 | -0.01 | <0.1 | 0.1 | -0.01 |
| Ulcerative colitis | 0.7 | 0.7 | -0.01 | 0.6 | 0.7 | -0.01 |
| Urinary tract infectious disease | 15.2 | 17.1 | -0.05 | 15.6 | 16.1 | -0.01 |
| Viral hepatitis C | 0.4 | 0.5 | -0.02 | 0.4 | 0.5 | -0.01 |
| Visual system disorder | 61.5 | 61.0 | 0.01 | 61.3 | 60.8 | 0.01 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 9.6 | 11.3 | -0.06 | 10.3 | 10.6 | -0.01 |
| Cerebrovascular disease | 12.0 | 11.3 | 0.02 | 11.8 | 11.3 | 0.02 |
| Coronary arteriosclerosis | 19.8 | 20.3 | -0.01 | 20.7 | 20.5 | 0.01 |
| Heart disease | 44.9 | 46.4 | -0.03 | 45.7 | 46.0 | -0.01 |
| Heart failure | 11.9 | 10.5 | 0.04 | 11.4 | 11.2 | 0.01 |
| Ischemic heart disease | 10.5 | 10.0 | 0.02 | 10.7 | 10.2 | 0.02 |
| Peripheral vascular disease | 6.3 | 6.4 | 0.00 | 6.5 | 6.0 | 0.02 |
| Pulmonary embolism | 1.4 | 1.4 | 0.01 | 1.5 | 1.3 | 0.02 |
| Venous thrombosis | 3.2 | 3.8 | -0.04 | 3.5 | 3.7 | -0.02 |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | 2.0 | 2.3 | -0.02 | 2.1 | 2.2 | -0.01 |
| Malignant lymphoma | 1.5 | 1.4 | 0.01 | 1.6 | 1.4 | 0.02 |
| Malignant neoplasm of anorectum | 0.3 | 0.4 | -0.02 | 0.3 | 0.4 | -0.02 |
| Malignant neoplastic disease | 18.8 | 19.7 | -0.02 | 19.4 | 19.1 | 0.01 |
| Malignant tumor of breast | 4.1 | 3.9 | 0.01 | 4.3 | 3.9 | 0.02 |
| Malignant tumor of colon | 0.6 | 0.8 | -0.02 | 0.7 | 0.8 | -0.01 |
| Malignant tumor of lung | 0.8 | 0.9 | -0.01 | 0.8 | 1.0 | -0.03 |
| Malignant tumor of urinary bladder | 0.9 | 0.9 | 0.00 | 0.9 | 0.9 | 0.00 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Primary malignant neoplasm of prostate | 1.9 | 2.4 | -0.03 | 2.2 | 2.1 | 0.01 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 48.0 | 47.7 | 0.00 | 47.7 | 48.3 | -0.01 |
| Antibacterials for systemic use | 53.1 | 51.8 | 0.03 | 52.4 | 52.7 | -0.01 |
| Antidepressants | 36.6 | 35.7 | 0.02 | 36.2 | 37.1 | -0.02 |
| Antiepileptics | 23.7 | 23.4 | 0.01 | 23.9 | 23.7 | 0.01 |
| Antiinflammatory and antirheumatic products | 37.0 | 41.3 | -0.09 | 40.3 | 39.5 | 0.02 |
| Antineoplastic agents | 37.1 | 36.1 | 0.02 | 36.5 | 37.2 | -0.02 |
| Antipsoriatics | 1.3 | 1.2 | 0.01 | 1.3 | 1.3 | 0.00 |
| Antithrombotic agents | 23.3 | 26.2 | -0.07 | 24.7 | 24.6 | 0.00 |
| Beta blocking agents | 40.3 | 41.7 | -0.03 | 41.4 | 41.0 | 0.01 |
| Calcium channel blockers | 30.5 | 29.5 | 0.02 | 30.2 | 29.9 | 0.01 |
| Diuretics | 48.1 | 47.5 | 0.01 | 47.6 | 48.4 | -0.02 |
| Drugs for acid related disorders | 52.0 | 49.7 | 0.05 | 51.2 | 51.6 | -0.01 |
| Drugs for obstructive airway diseases | 49.3 | 36.0 | 0.27 | 41.8 | 43.0 | -0.02 |
| Drugs used in diabetes | 15.5 | 15.1 | 0.01 | 15.5 | 15.1 | 0.01 |
| Immunosuppressants | 49.6 | 47.6 | 0.04 | 48.5 | 49.3 | -0.02 |
| Lipid modifying agents | 47.4 | 47.6 | 0.00 | 48.0 | 47.9 | 0.00 |
| Opioids | 41.9 | 44.9 | -0.06 | 42.9 | 43.2 | 0.00 |
| Psycholeptics | 38.7 | 37.1 | 0.03 | 37.9 | 38.2 | -0.01 |
| Psychostimulants, agents used for adhd and nootropics | 2.3 | 2.6 | -0.02 | 2.4 | 2.7 | -0.02 |

## S6.2.10. OpenClaims

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 15-19 | 0.3 | 0.3 | 0.00 | 0.3 | 0.3 | 0.00 |
| 20-24 | 1.0 | 1.0 | 0.00 | 1.0 | 1.0 | 0.00 |
| 25-29 | 1.8 | 1.7 | 0.00 | 1.8 | 1.8 | 0.00 |
| 30-34 | 3.0 | 2.9 | 0.01 | 3.0 | 2.9 | 0.00 |
| 40-44 | 6.1 | 5.7 | 0.02 | 6.0 | 5.9 | 0.00 |
| 50-54 | 11.7 | 11.1 | 0.02 | 11.5 | 11.5 | 0.00 |
| 55-59 | 14.0 | 13.9 | 0.00 | 14.0 | 14.0 | 0.00 |
| 60-64 | 13.8 | 14.1 | -0.01 | 13.9 | 14.1 | 0.00 |
| 65-69 | 12.4 | 13.0 | -0.02 | 12.7 | 12.7 | 0.00 |
| 80-84 | 4.0 | 4.6 | -0.03 | 4.3 | 4.2 | 0.00 |
| 85-89 | 0.2 | 0.2 | 0.00 | 0.2 | 0.2 | 0.01 |
| Gender: female | 84.7 | 82.1 | 0.07 | 83.5 | 83.5 | 0.00 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 36.6 | 27.3 | 0.20 | 33.1 | 31.5 | 0.03 |
| Attention deficit hyperactivity disorder | 0.9 | 0.8 | 0.00 | 0.9 | 0.8 | 0.00 |
| Chronic liver disease | 2.1 | 2.2 | -0.01 | 2.2 | 2.2 | 0.00 |
| Chronic obstructive lung disease | 10.6 | 8.0 | 0.09 | 9.4 | 9.3 | 0.00 |
| Crohn's disease | 0.5 | 0.5 | 0.00 | 0.5 | 0.5 | 0.00 |
| Dementia | 0.9 | 1.0 | -0.01 | 0.9 | 0.9 | 0.00 |
| Depressive disorder | 11.3 | 11.6 | -0.01 | 11.7 | 11.5 | 0.01 |
| Diabetes mellitus | 16.5 | 16.9 | -0.01 | 16.8 | 16.7 | 0.00 |
| Gastroesophageal reflux disease | 5.5 | 6.4 | -0.04 | 6.0 | 5.9 | 0.00 |
| Gastrointestinal hemorrhage | 2.5 | 2.7 | -0.01 | 2.6 | 2.6 | 0.00 |
| Hyperlipidemia | 26.6 | 27.3 | -0.02 | 27.1 | 26.8 | 0.01 |
| Hypertensive disorder | 37.0 | 38.1 | -0.02 | 37.9 | 37.4 | 0.01 |
| Lesion of liver | 0.8 | 0.9 | -0.01 | 0.9 | 0.9 | 0.00 |
| Obesity | 7.6 | 7.8 | -0.01 | 7.8 | 7.7 | 0.00 |
| Osteoarthritis | 35.5 | 38.0 | -0.05 | 37.0 | 36.6 | 0.01 |
| Pneumonia | 7.1 | 4.8 | 0.10 | 6.1 | 5.8 | 0.01 |
| Psoriasis | 1.9 | 1.9 | 0.00 | 2.0 | 1.9 | 0.00 |
| Renal impairment | 7.2 | 7.7 | -0.02 | 7.5 | 7.5 | 0.00 |
| Rheumatoid arthritis | 68.4 | 67.8 | 0.01 | 68.1 | 68.0 | 0.00 |
| Schizophrenia | 0.2 | 0.2 | 0.01 | 0.2 | 0.2 | 0.01 |
| Ulcerative colitis | 0.5 | 0.5 | 0.00 | 0.5 | 0.5 | 0.00 |
| Urinary tract infectious disease | 10.0 | 11.0 | -0.03 | 10.6 | 10.5 | 0.00 |
| Viral hepatitis C | 1.0 | 1.1 | -0.01 | 1.0 | 1.0 | 0.00 |
| Visual system disorder | 26.7 | 27.3 | -0.01 | 27.1 | 27.0 | 0.00 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 3.5 | 4.4 | -0.05 | 4.0 | 4.0 | 0.00 |
| Cerebrovascular disease | 3.5 | 3.5 | 0.00 | 3.6 | 3.5 | 0.00 |
| Coronary arteriosclerosis | 7.3 | 7.7 | -0.02 | 7.7 | 7.6 | 0.00 |
| Heart disease | 19.8 | 20.8 | -0.02 | 20.4 | 20.3 | 0.00 |
| Ischemic heart disease | 3.9 | 3.9 | 0.00 | 4.0 | 3.9 | 0.00 |
| Peripheral vascular disease | 10.4 | 11.2 | -0.03 | 11.0 | 10.8 | 0.00 |
| Pulmonary embolism | 0.9 | 1.0 | -0.01 | 1.0 | 1.0 | 0.00 |
| Venous thrombosis | 1.6 | 1.8 | -0.01 | 1.7 | 1.7 | 0.00 |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | 1.0 | 1.1 | -0.01 | 1.1 | 1.1 | 0.00 |
| Malignant lymphoma | 0.7 | 0.7 | 0.00 | 0.7 | 0.7 | 0.00 |
| Malignant neoplasm of anorectum | 0.1 | 0.1 | 0.00 | 0.1 | 0.1 | 0.00 |
| Malignant neoplastic disease | 8.0 | 8.4 | -0.01 | 8.3 | 8.2 | 0.00 |
| Malignant tumor of breast | 2.1 | 2.1 | 0.00 | 2.2 | 2.1 | 0.00 |
| Malignant tumor of colon | 0.3 | 0.3 | -0.01 | 0.3 | 0.3 | 0.00 |
| Malignant tumor of lung | 0.4 | 0.3 | 0.01 | 0.4 | 0.4 | 0.00 |
| Malignant tumor of urinary bladder | 0.2 | 0.3 | -0.01 | 0.2 | 0.3 | 0.00 |
| Primary malignant neoplasm of prostate | 0.6 | 0.7 | -0.01 | 0.6 | 0.6 | 0.00 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 37.3 | 38.2 | -0.02 | 38.0 | 37.9 | 0.00 |
| Antibacterials for systemic use | 49.3 | 49.7 | -0.01 | 49.9 | 49.9 | 0.00 |
| Antidepressants | 45.6 | 45.4 | 0.00 | 46.0 | 45.8 | 0.00 |
| Antiepileptics | 32.9 | 33.3 | -0.01 | 33.5 | 33.3 | 0.00 |
| Antiinflammatory and antirheumatic products | 45.3 | 47.7 | -0.05 | 46.8 | 46.6 | 0.00 |
| Antineoplastic agents | 38.6 | 35.9 | 0.06 | 37.0 | 37.3 | 0.00 |
| Antithrombotic agents | 15.7 | 18.3 | -0.07 | 17.2 | 17.0 | 0.00 |
| Beta blocking agents | 28.8 | 30.2 | -0.03 | 29.7 | 29.6 | 0.00 |
| Calcium channel blockers | 21.7 | 22.0 | -0.01 | 22.0 | 21.9 | 0.00 |
| Diuretics | 35.6 | 35.8 | 0.00 | 35.9 | 35.9 | 0.00 |
| Drugs for acid related disorders | 47.6 | 47.4 | 0.00 | 47.7 | 47.8 | 0.00 |
| Drugs for obstructive airway diseases | 50.2 | 40.6 | 0.19 | 45.8 | 45.5 | 0.01 |
| Immunosuppressants | 52.8 | 50.2 | 0.05 | 51.4 | 51.5 | 0.00 |
| Lipid modifying agents | 34.8 | 35.9 | -0.02 | 35.6 | 35.5 | 0.00 |
| Opioids | 41.8 | 44.3 | -0.05 | 43.5 | 43.2 | 0.01 |
| Psycholeptics | 39.2 | 38.4 | 0.02 | 39.3 | 39.2 | 0.00 |
| Psychostimulants, agents used for adhd and nootropics | 6.7 | 6.5 | 0.01 | 6.8 | 6.7 | 0.00 |

## S6.2.11. OptumEHR

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 15-19 | 0.2 | 0.3 | -0.02 | 0.2 | 0.3 | -0.02 |
| 20-24 | 0.9 | 0.9 | 0.00 | 1.1 | 0.8 | 0.03 |
| 25-29 | 1.6 | 1.7 | 0.00 | 1.9 | 1.6 | 0.02 |
| 30-34 | 2.7 | 3.1 | -0.03 | 2.9 | 2.9 | 0.00 |
| 35-39 | 3.7 | 4.5 | -0.04 | 4.1 | 4.1 | 0.00 |
| 40-44 | 5.3 | 5.9 | -0.03 | 5.7 | 6.0 | -0.01 |
| 45-49 | 7.1 | 7.4 | -0.01 | 7.3 | 7.4 | 0.00 |
| 50-54 | 10.5 | 10.5 | 0.00 | 10.5 | 10.3 | 0.01 |
| 55-59 | 13.1 | 13.8 | -0.02 | 13.2 | 13.9 | -0.02 |
| 60-64 | 13.7 | 13.6 | 0.00 | 13.9 | 13.8 | 0.00 |
| 65-69 | 12.6 | 12.2 | 0.01 | 12.4 | 12.5 | 0.00 |
| 70-74 | 10.9 | 10.5 | 0.01 | 10.5 | 10.6 | 0.00 |
| 75-79 | 8.6 | 7.6 | 0.04 | 8.2 | 7.9 | 0.01 |
| 80-84 | 6.4 | 6.0 | 0.02 | 5.9 | 5.8 | 0.00 |
| 85-89 | 2.6 | 2.1 | 0.04 | 2.3 | 2.0 | 0.02 |
| Gender: female | 82.3 | 82.1 | 0.00 | 82.9 | 82.7 | 0.01 |
| Race | | | | | | |
| race = Asian | 1.1 | 1.0 | 0.01 | 1.0 | 1.0 | 0.01 |
| race = Black or African American | 10.5 | 9.4 | 0.04 | 10.0 | 9.4 | 0.02 |
| race = White | 83.4 | 84.3 | -0.02 | 84.1 | 84.4 | -0.01 |
| Ethnicity | | | | | | |
| ethnicity = Hispanic or Latino | 4.6 | 4.4 | 0.01 | 4.5 | 4.5 | 0.00 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 57.2 | 43.2 | 0.28 | 52.6 | 51.8 | 0.02 |
| Attention deficit hyperactivity disorder | 1.0 | 1.5 | -0.04 | 1.1 | 1.4 | -0.03 |
| Chronic liver disease | 3.3 | 3.4 | -0.01 | 3.4 | 3.4 | 0.00 |
| Chronic obstructive lung disease | 19.5 | 11.0 | 0.24 | 15.2 | 15.1 | 0.00 |
| Crohn's disease | 0.6 | 0.6 | 0.00 | 0.7 | 0.5 | 0.02 |
| Dementia | 2.2 | 1.9 | 0.02 | 1.9 | 1.9 | 0.00 |
| Depressive disorder | 23.7 | 23.4 | 0.01 | 23.9 | 23.4 | 0.01 |
| Diabetes mellitus | 19.3 | 18.3 | 0.03 | 18.8 | 18.4 | 0.01 |
| Gastroesophageal reflux disease | 29.6 | 28.1 | 0.03 | 29.2 | 28.8 | 0.01 |
| Human immunodeficiency virus infection | 0.2 | 0.1 | 0.01 | 0.2 | 0.2 | 0.00 |
| Hyperlipidemia | 40.8 | 38.8 | 0.04 | 39.7 | 39.4 | 0.01 |
| Hypertensive disorder | 51.4 | 49.7 | 0.03 | 50.4 | 50.4 | 0.00 |
| Lesion of liver | 1.5 | 1.5 | 0.00 | 1.6 | 1.4 | 0.01 |
| Obesity | 17.5 | 18.1 | -0.02 | 17.6 | 17.8 | -0.01 |
| Osteoarthritis | 41.1 | 42.2 | -0.02 | 41.4 | 41.0 | 0.01 |
| Pneumonia | 20.6 | 7.6 | 0.38 | 14.7 | 12.4 | 0.07 |
| Psoriasis | 2.1 | 2.1 | 0.00 | 2.2 | 2.1 | 0.01 |
| Renal impairment | 14.7 | 12.8 | 0.06 | 13.2 | 12.6 | 0.02 |
| Rheumatoid arthritis | 84.8 | 83.4 | 0.04 | 84.0 | 84.3 | -0.01 |
| Schizophrenia | 0.3 | 0.3 | -0.01 | 0.2 | 0.3 | -0.01 |
| Ulcerative colitis | 0.5 | 0.7 | -0.03 | 0.6 | 0.6 | 0.00 |
| Urinary tract infectious disease | 13.1 | 14.1 | -0.03 | 13.7 | 13.2 | 0.02 |
| Viral hepatitis C | 1.3 | 1.1 | 0.02 | 1.3 | 1.1 | 0.01 |
| Visual system disorder | 21.4 | 22.6 | -0.03 | 21.5 | 21.6 | 0.00 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 7.5 | 6.9 | 0.02 | 6.9 | 7.1 | -0.01 |
| Cerebrovascular disease | 5.1 | 4.5 | 0.03 | 4.8 | 4.5 | 0.01 |
| Coronary arteriosclerosis | 13.4 | 12.1 | 0.04 | 12.5 | 12.5 | 0.00 |
| Heart disease | 33.3 | 29.6 | 0.08 | 31.1 | 30.3 | 0.02 |
| Heart failure | 11.3 | 8.0 | 0.12 | 9.4 | 8.6 | 0.03 |
| Ischemic heart disease | 8.0 | 6.7 | 0.05 | 7.2 | 7.0 | 0.01 |
| Pulmonary embolism | 1.7 | 1.8 | -0.01 | 1.7 | 1.7 | 0.00 |
| Venous thrombosis | 3.3 | 3.4 | -0.01 | 3.3 | 3.1 | 0.01 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | 1.7 | 1.7 | 0.00 | 1.8 | 1.6 | 0.01 |
| Malignant lymphoma | 0.8 | 1.0 | -0.02 | 0.8 | 0.9 | -0.02 |
| Malignant neoplasm of anorectum | 0.4 | 0.5 | -0.02 | 0.3 | 0.4 | 0.00 |
| Malignant neoplastic disease | 11.8 | 13.3 | -0.05 | 12.2 | 12.5 | -0.01 |
| Malignant tumor of breast | 2.5 | 3.1 | -0.03 | 2.7 | 2.8 | -0.01 |
| Malignant tumor of colon | 0.5 | 0.6 | -0.01 | 0.5 | 0.5 | 0.01 |
| Malignant tumor of lung | 1.0 | 0.7 | 0.04 | 0.9 | 0.9 | -0.01 |
| Malignant tumor of urinary bladder | 0.3 | 0.4 | -0.02 | 0.3 | 0.3 | -0.01 |
| Primary malignant neoplasm of prostate | 0.8 | 0.8 | 0.00 | 0.9 | 0.7 | 0.02 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 37.6 | 36.5 | 0.02 | 36.9 | 36.5 | 0.01 |
| Antibacterials for systemic use | 53.0 | 51.6 | 0.03 | 52.1 | 50.8 | 0.03 |
| Antidepressants | 47.6 | 48.1 | -0.01 | 48.1 | 48.3 | 0.00 |
| Antiepileptics | 33.3 | 34.7 | -0.03 | 33.8 | 34.1 | 0.00 |
| Antiinflammatory and antirheumatic products | 47.1 | 50.6 | -0.07 | 48.8 | 49.7 | -0.02 |
| Antineoplastic agents | 39.5 | 36.8 | 0.06 | 38.1 | 38.6 | -0.01 |
| Antithrombotic agents | 47.7 | 44.7 | 0.06 | 45.4 | 44.1 | 0.03 |
| Beta blocking agents | 35.2 | 35.8 | -0.01 | 35.0 | 34.9 | 0.00 |
| Calcium channel blockers | 24.0 | 22.2 | 0.04 | 22.9 | 22.8 | 0.00 |
| Diuretics | 40.3 | 38.3 | 0.04 | 39.3 | 38.9 | 0.01 |
| Drugs for acid related disorders | 61.8 | 61.0 | 0.02 | 61.0 | 61.0 | 0.00 |
| Drugs for obstructive airway diseases | 64.7 | 52.3 | 0.25 | 58.6 | 59.1 | -0.01 |
| Drugs used in diabetes | 19.7 | 19.2 | 0.02 | 19.1 | 19.1 | 0.00 |
| Immunosuppressants | 56.0 | 53.6 | 0.05 | 55.1 | 55.5 | -0.01 |
| Lipid modifying agents | 37.0 | 36.1 | 0.02 | 36.2 | 35.9 | 0.01 |
| Opioids | 52.5 | 53.9 | -0.03 | 52.3 | 52.2 | 0.00 |
| Psycholeptics | 49.8 | 49.6 | 0.00 | 49.2 | 49.5 | -0.01 |
| Psychostimulants, agents used for adhd and nootropics | 5.6 | 6.6 | -0.04 | 6.0 | 6.3 | -0.01 |

## S6.2.12. SIDIAP

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 20-24 | <3.8 | <0.7 | 0.09 | <2.8 | <0.7 | 0.07 |
| 30-34 | <3.8 | 4.1 | -0.10 | <2.8 | 4.0 | -0.12 |
| 35-39 | 3.8 | 5.5 | -0.08 | 6.1 | 5.4 | 0.03 |
| 40-44 | 6.2 | 6.3 | 0.00 | 3.3 | 6.1 | -0.13 |
| 45-49 | 4.6 | 6.0 | -0.06 | 5.7 | 5.8 | -0.01 |
| 50-54 | 13.1 | 8.3 | 0.16 | 17.6 | 8.3 | 0.28 |
| 55-59 | 15.4 | 10.3 | 0.15 | 17.5 | 10.5 | 0.20 |
| 60-64 | 10.8 | 12.7 | -0.06 | 12.9 | 12.9 | 0.00 |
| 65-69 | 7.7 | 12.2 | -0.15 | 5.0 | 12.5 | -0.27 |
| 70-74 | 12.3 | 11.1 | 0.04 | 10.0 | 11.0 | -0.03 |
| 75-79 | 7.7 | 8.9 | -0.04 | 4.5 | 8.6 | -0.17 |
| 80-84 | 7.7 | 8.2 | -0.02 | 9.0 | 8.3 | 0.03 |
| 85-89 | 6.2 | 3.1 | 0.15 | 4.0 | 3.3 | 0.03 |
| 90-94 | <3.8 | <0.7 | 0.09 | <2.8 | <0.7 | 0.12 |
| Gender: female | 80.0 | 77.6 | 0.06 | 79.9 | 77.9 | 0.05 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 26.9 | 20.1 | 0.16 | 29.4 | 20.6 | 0.20 |
| Chronic liver disease | <3.8 | 1.2 | -0.04 | <2.8 | 1.2 | -0.09 |
| Chronic obstructive lung disease | 4.6 | 2.6 | 0.11 | 3.7 | 2.7 | 0.05 |
| Dementia | <3.8 | 0.9 | -0.01 | <2.8 | 0.9 | -0.06 |
| Depressive disorder | <3.8 | 4.7 | -0.08 | <2.8 | 4.9 | -0.11 |
| Diabetes mellitus | <3.8 | 3.6 | -0.13 | <2.8 | 3.5 | -0.10 |
| Gastroesophageal reflux disease | <3.8 | 1.3 | 0.02 | <2.8 | 1.3 | -0.04 |
| Gastrointestinal hemorrhage | 5.4 | 2.0 | 0.18 | 5.5 | 2.1 | 0.18 |
| Hyperlipidemia | 4.6 | 6.4 | -0.08 | 3.8 | 6.3 | -0.12 |
| Hypertensive disorder | 6.2 | 7.1 | -0.04 | 6.3 | 7.0 | -0.03 |
| Obesity | 7.7 | 8.0 | -0.01 | 9.8 | 7.9 | 0.07 |
| Osteoarthritis | 4.6 | 3.8 | 0.04 | 5.2 | 3.7 | 0.07 |
| Pneumonia | <3.8 | 3.4 | -0.06 | <2.8 | 3.4 | -0.14 |
| Renal impairment | <3.8 | 2.9 | -0.04 | <2.8 | 2.8 | -0.03 |
| Rheumatoid arthritis | 20.8 | 29.3 | -0.20 | 22.9 | 28.8 | -0.13 |
| Urinary tract infectious disease | 8.5 | 10.8 | -0.08 | 5.5 | 10.8 | -0.19 |
| Viral hepatitis C | <3.8 | <0.7 | 0.02 | <2.8 | <0.7 | -0.04 |
| Visual system disorder | 17.7 | 20.8 | -0.08 | 14.6 | 20.9 | -0.16 |
| Medical history: Cardiovascular disease | | | | | | |
| Cerebrovascular disease | 4.6 | 4.1 | 0.03 | 5.5 | 4.3 | 0.06 |
| Heart disease | 6.9 | 10.1 | -0.11 | 6.9 | 10.0 | -0.11 |
| Heart failure | <3.8 | 1.5 | -0.07 | <2.8 | 1.5 | -0.10 |
| Ischemic heart disease | <3.8 | 3.4 | -0.02 | <2.8 | 3.4 | -0.09 |
| Peripheral vascular disease | 8.5 | 6.4 | 0.08 | 5.8 | 6.4 | -0.02 |
| Venous thrombosis | <3.8 | <0.7 | 0.04 | <2.8 | <0.7 | -0.01 |
| Medical history: Neoplasms | | | | | | |
| Malignant neoplastic disease | <3.8 | 4.7 | -0.13 | <2.8 | 4.8 | -0.18 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 26.9 | 31.2 | -0.09 | 21.0 | 31.1 | -0.23 |
| Antibacterials for systemic use | 27.7 | 27.1 | 0.01 | 23.2 | 27.6 | -0.10 |
| Antidepressants | 30.8 | 28.9 | 0.04 | 33.8 | 29.2 | 0.10 |
| Antiepileptics | 16.2 | 14.0 | 0.06 | 14.3 | 14.2 | 0.00 |
| Antiinflammatory and antirheumatic products | 62.3 | 64.4 | -0.04 | 55.1 | 64.6 | -0.20 |
| Antineoplastic agents | 27.7 | 17.6 | 0.24 | 18.1 | 19.1 | -0.03 |
| Antipsoriatics | <3.8 | 1.2 | -0.04 | <2.8 | 1.1 | 0.08 |
| Antithrombotic agents | 20.8 | 25.2 | -0.11 | 22.5 | 25.0 | -0.06 |
| Beta blocking agents | 15.4 | 15.0 | 0.01 | 15.3 | 14.9 | 0.01 |
| Calcium channel blockers | 9.2 | 9.8 | -0.02 | 10.1 | 9.5 | 0.02 |
| Diuretics | 30.0 | 29.3 | 0.02 | 30.3 | 29.3 | 0.02 |
| Drugs for acid related disorders | 89.2 | 83.2 | 0.18 | 82.0 | 83.9 | -0.05 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Drugs for obstructive airway diseases | 48.5 | 38.9 | 0.19 | 34.3 | 41.2 | -0.14 |
| Drugs used in diabetes | 11.5 | 14.7 | -0.09 | 11.8 | 14.5 | -0.08 |
| Immunosuppressants | 37.7 | 29.4 | 0.18 | 26.9 | 30.8 | -0.08 |
| Lipid modifying agents | 26.9 | 27.4 | -0.01 | 27.1 | 27.4 | -0.01 |
| Opioids | 16.2 | 22.2 | -0.15 | 13.2 | 22.5 | -0.24 |
| Psycholeptics | 43.8 | 41.3 | 0.05 | 41.1 | 41.6 | -0.01 |
| Psychostimulants, agents used for adhd and nootropics | 5.4 | 2.5 | 0.15 | 3.6 | 2.5 | 0.06 |

## S6.2.13. VA

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Age group | | | | | | |
| 20-24 | <0.1 | 0.1 | 0.00 | <0.1 | 0.1 | 0.00 |
| 25-29 | 0.4 | 0.2 | 0.03 | 0.4 | 0.3 | 0.03 |
| 30-34 | 1.0 | 1.0 | 0.00 | 1.2 | 1.1 | 0.02 |
| 35-39 | 1.3 | 1.5 | -0.02 | 1.3 | 1.4 | -0.01 |
| 40-44 | 2.5 | 2.8 | -0.02 | 3.1 | 2.7 | 0.02 |
| 45-49 | 4.9 | 5.5 | -0.03 | 5.9 | 5.4 | 0.02 |
| 50-54 | 8.8 | 9.1 | -0.01 | 9.6 | 9.0 | 0.02 |
| 55-59 | 13.4 | 14.6 | -0.03 | 12.9 | 14.3 | -0.04 |
| 60-64 | 17.6 | 17.2 | 0.01 | 17.1 | 18.0 | -0.02 |
| 65-69 | 18.2 | 17.5 | 0.02 | 17.2 | 17.0 | 0.00 |
| 70-74 | 13.7 | 13.9 | -0.01 | 14.5 | 14.2 | 0.01 |
| 75-79 | 8.9 | 8.6 | 0.01 | 8.2 | 8.6 | -0.01 |
| 80-84 | 5.7 | 5.4 | 0.02 | 5.4 | 5.2 | 0.00 |
| 85-89 | 2.9 | 2.0 | 0.05 | 2.5 | 2.0 | 0.03 |
| 90-94 | 0.6 | 0.5 | 0.02 | 0.5 | 0.6 | -0.01 |
| 95-99 | <0.1 | <0.1 | 0.01 | <0.1 | <0.1 | 0.00 |
| Gender: female | 18.6 | 16.7 | 0.05 | 18.7 | 17.5 | 0.03 |
| Race | | | | | | |
| race = Asian | 0.4 | 0.3 | 0.01 | 0.3 | 0.3 | 0.01 |
| race = Black or African American | 16.5 | 17.8 | -0.04 | 17.0 | 17.7 | -0.02 |
| race = White | 74.0 | 71.1 | 0.06 | 73.2 | 71.8 | 0.03 |
| race = Unknown | 7.7 | 8.9 | -0.04 | 8.0 | 8.4 | -0.02 |
| race = Native Hawaiian or Other Pacific Islander | 0.6 | 0.8 | -0.02 | 0.7 | 0.8 | -0.01 |
| race = American Indian or Alaska Native | 0.8 | 1.1 | -0.02 | 0.8 | 1.0 | -0.02 |
| Ethnicity | | | | | | |
| ethnicity = Hispanic or Latino | 4.7 | 5.2 | -0.02 | 3.9 | 4.8 | -0.04 |
| ethnicity = Not Hispanic or Latino | 91.1 | 89.3 | 0.06 | 91.6 | 89.9 | 0.06 |
| Medical history: General | | | | | | |
| Acute respiratory disease | 48.2 | 29.9 | 0.38 | 40.3 | 40.4 | 0.00 |
| Attention deficit hyperactivity disorder | 0.4 | 0.6 | -0.04 | 0.4 | 0.6 | -0.03 |
| Chronic liver disease | 3.7 | 4.6 | -0.04 | 3.7 | 4.2 | -0.03 |
| Chronic obstructive lung disease | 33.7 | 22.5 | 0.25 | 26.1 | 27.6 | -0.03 |
| Crohn's disease | 0.4 | 0.4 | 0.00 | 0.4 | 0.3 | 0.02 |
| Depressive disorder | 28.4 | 27.9 | 0.01 | 29.5 | 28.5 | 0.02 |
| Diabetes mellitus | 27.4 | 29.5 | -0.05 | 28.0 | 28.2 | 0.00 |
| Gastroesophageal reflux disease | 7.2 | 8.0 | -0.03 | 7.4 | 7.7 | -0.01 |
| Gastrointestinal hemorrhage | 3.2 | 3.7 | -0.03 | 3.8 | 3.2 | 0.03 |
| Human immunodeficiency virus infection | 0.3 | 0.4 | -0.02 | 0.3 | 0.4 | -0.02 |
| Hyperlipidemia | 48.8 | 46.6 | 0.04 | 47.0 | 47.0 | 0.00 |
| Hypertensive disorder | 64.7 | 63.3 | 0.03 | 63.8 | 63.3 | 0.01 |
| Lesion of liver | 1.5 | 1.9 | -0.03 | 1.7 | 1.9 | -0.02 |
| Obesity | 18.4 | 18.4 | 0.00 | 17.8 | 18.5 | -0.02 |
| Osteoarthritis | 42.8 | 43.8 | -0.02 | 42.6 | 42.9 | 0.00 |
| Pneumonia | 18.2 | 7.9 | 0.31 | 12.9 | 11.4 | 0.04 |
| Psoriasis | 2.4 | 2.5 | 0.00 | 2.5 | 2.2 | 0.02 |
| Renal impairment | 11.9 | 11.8 | 0.00 | 11.4 | 11.2 | 0.01 |
| Rheumatoid arthritis | 87.3 | 86.0 | 0.04 | 86.0 | 86.7 | -0.02 |
| Schizophrenia | 0.7 | 1.1 | -0.04 | 1.1 | 1.1 | 0.00 |
| Ulcerative colitis | 0.4 | 0.5 | -0.02 | 0.5 | 0.4 | 0.01 |
| Urinary tract infectious disease | 5.9 | 8.3 | -0.09 | 7.4 | 7.2 | 0.01 |
| Visual system disorder | 65.7 | 65.2 | 0.01 | 65.2 | 64.9 | 0.01 |
| Medical history: Cardiovascular disease | | | | | | |
| Atrial fibrillation | 7.4 | 8.3 | -0.03 | 7.9 | 8.1 | -0.01 |
| Cerebrovascular disease | 6.1 | 5.6 | 0.02 | 6.1 | 5.4 | 0.03 |
| Coronary arteriosclerosis | 19.5 | 18.3 | 0.03 | 18.6 | 18.0 | 0.02 |
| Heart disease | 39.8 | 38.2 | 0.03 | 38.7 | 37.7 | 0.02 |

| Characteristic | Before stratification | | | After stratification | | |
|---|---|---|---|---|---|---|
| | AZM | AMX | | AZM | AMX | |
| | % | % | Std. diff | % | % | Std. diff |
| Heart failure | 11.8 | 9.9 | 0.06 | 11.3 | 10.2 | 0.04 |
| Ischemic heart disease | 15.7 | 15.2 | 0.01 | 15.2 | 15.1 | 0.00 |
| Peripheral vascular disease | 17.6 | 18.4 | -0.02 | 18.1 | 18.0 | 0.00 |
| Pulmonary embolism | 1.5 | 1.6 | -0.01 | 1.7 | 1.5 | 0.02 |
| Venous thrombosis | 2.3 | 2.5 | -0.01 | 2.4 | 2.2 | 0.01 |
| Medical history: Neoplasms | | | | | | |
| Hematologic neoplasm | 1.8 | 2.2 | -0.03 | 1.9 | 2.2 | -0.02 |
| Malignant lymphoma | 1.2 | 1.3 | -0.01 | 1.2 | 1.2 | 0.00 |
| Malignant neoplasm of anorectum | 0.2 | 0.2 | 0.00 | 0.1 | 0.1 | 0.00 |
| Malignant neoplastic disease | 16.3 | 16.4 | 0.00 | 17.1 | 16.0 | 0.03 |
| Malignant tumor of breast | 0.8 | 0.4 | 0.06 | 0.8 | 0.4 | 0.05 |
| Malignant tumor of colon | 0.6 | 0.8 | -0.03 | 0.5 | 0.7 | -0.03 |
| Malignant tumor of lung | 1.1 | 1.0 | 0.00 | 1.0 | 1.2 | -0.02 |
| Malignant tumor of urinary bladder | 1.2 | 1.1 | 0.00 | 1.3 | 1.1 | 0.02 |
| Primary malignant neoplasm of prostate | 4.6 | 5.0 | -0.02 | 5.0 | 4.9 | 0.01 |
| Medication use | | | | | | |
| Agents acting on the renin-angiotensin system | 45.4 | 45.3 | 0.00 | 44.8 | 44.9 | 0.00 |
| Antiepileptics | 29.8 | 31.3 | -0.03 | 32.1 | 30.4 | 0.04 |
| Antiinflammatory and antirheumatic products | 49.5 | 51.7 | -0.04 | 51.6 | 51.5 | 0.00 |
| Antineoplastic agents | 45.5 | 39.0 | 0.13 | 41.5 | 42.1 | -0.01 |
| Antipsoriatics | 1.8 | 1.6 | 0.02 | 2.2 | 1.4 | 0.06 |
| Antithrombotic agents | 45.3 | 45.3 | 0.00 | 45.7 | 43.9 | 0.04 |
| Beta blocking agents | 40.4 | 41.4 | -0.02 | 41.0 | 40.2 | 0.02 |
| Calcium channel blockers | 27.4 | 27.6 | -0.01 | 28.2 | 27.0 | 0.03 |
| Diuretics | 42.4 | 41.4 | 0.02 | 42.3 | 41.3 | 0.02 |
| Drugs for acid related disorders | 71.1 | 70.4 | 0.01 | 71.1 | 70.3 | 0.02 |
| Drugs for obstructive airway diseases | 57.5 | 41.7 | 0.32 | 48.3 | 49.0 | -0.01 |
| Drugs used in diabetes | 23.1 | 25.1 | -0.05 | 24.4 | 23.9 | 0.01 |
| Immunosuppressants | 58.8 | 52.8 | 0.12 | 54.7 | 55.5 | -0.02 |
| Lipid modifying agents | 51.9 | 49.9 | 0.04 | 50.4 | 49.7 | 0.01 |
| Opioids | 43.7 | 46.6 | -0.06 | 45.3 | 44.1 | 0.02 |
| Psycholeptics | 35.3 | 36.3 | -0.02 | 36.2 | 35.7 | 0.01 |
| Psychostimulants, agents used for adhd and nootropics | 2.7 | 2.9 | -0.02 | 2.9 | 2.9 | 0.00 |

## S7. Patient counts, events, incident rates

Patient counts, event counts, and incidence rates per 1,000 person-years are reported below for hydroxychloroquine vs sulfasalazine and hydroxychloroquine+azithromycin vs hydroxychloroquine+amoxicillin during 30-day and on-treatment follow-up periods for outcomes not reported in the manuscript. Note that the IR does not account for stratification.

| Comparison | Outcome | Database | 30-day follow-up | | | | | | On-treatment follow-up | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Patients | | Events | | IR | | Patients | | Events | | IR | |
| | | | T | C | T | C | T | C | T | C | T | C | T | C |
| HCQ vs SSZ | All-cause mortality | Clinformatics | 51,280 | 17,389 | 20 | 10 | 4.81 | 7.09 | 51,280 | 17,389 | 527 | 66 | 9.88 | 5.29 |
| | | CPRD | 9,127 | 11,398 | 6 | 5 | 8.03 | 5.35 | 9,127 | 11,398 | 253 | 386 | 14.02 | 14.56 |
| | | IMRD | 8,851 | 8,460 | <5 | 6 | <6.91 | 8.66 | 8,851 | 8,460 | 214 | 241 | 12.32 | 12.72 |
| | | VA | 32,028 | 14,349 | 45 | 17 | 17.13 | 14.45 | 32,028 | 14,349 | 1,356 | 327 | 24.51 | 18.65 |
| | | Meta-analysis | 101,286 | 51,596 | <76 | 38 | <9.20 | 9.02 | NA | NA | NA | NA | NA | NA |
| | Myocardial infarction | CCAE | 66,630 | 22,374 | 29 | 11 | 5.36 | 6.05 | 66,630 | 22,374 | 240 | 48 | 3.64 | 3.28 |
| | | Clinformatics | 51,244 | 17,380 | 51 | 20 | 12.27 | 14.19 | 51,244 | 17,380 | 517 | 121 | 9.79 | 9.81 |
| | | MDCD | 8,079 | 2,196 | 13 | 5 | 19.75 | 27.98 | 8,079 | 2,196 | 83 | 14 | 14.32 | 11.39 |
| | | MDCR | 15,827 | 5,190 | 26 | 10 | 20.17 | 23.68 | 15,827 | 5,190 | 287 | 70 | 15.93 | 17.55 |
| | | OpenClaims | 620,751 | 183,482 | 369 | 89 | 7.24 | 5.91 | 620,751 | 183,482 | 5,396 | 956 | 6.25 | 5.57 |
| | | OptumEHR | 78,424 | 21,885 | 59 | 12 | 9.29 | 6.77 | NA | NA | NA | NA | NA | NA |
| | | VA | 32,009 | 14,342 | 30 | 9 | 11.43 | 7.65 | 32,009 | 14,342 | 395 | 137 | 7.22 | 7.89 |
| | | Meta-analysis | 872,964 | 266,849 | 577 | 156 | 8.08 | 7.14 | 794,540 | 244,964 | 6,918 | 1,346 | 6.52 | 6.08 |
| | Cardiovascular events | CCAE | 66,533 | 22,357 | 97 | 36 | 17.96 | 19.83 | 66,533 | 22,357 | 839 | 197 | 12.86 | 13.6 |
| | | Clinformatics | 51,095 | 17,340 | 215 | 76 | 51.96 | 54.11 | 51,095 | 17,340 | 2,232 | 490 | 43.8 | 40.92 |
| | | MDCD | 8,041 | 2,186 | 35 | 11 | 53.5 | 61.95 | 8,041 | 2,186 | 388 | 78 | 70.54 | 66.08 |
| | | MDCR | 15,759 | 5,167 | 117 | 39 | 91.39 | 93.05 | 15,759 | 5,167 | 1,295 | 310 | 76.12 | 82.67 |
| | | OpenClaims | 619,493 | 183,209 | 1,636 | 470 | 32.2 | 31.28 | 619,493 | 183,209 | 22,657 | 4,394 | 26.94 | 26.16 |
| | | OptumEHR | 77,825 | 21,752 | 294 | 70 | 46.7 | 39.79 | NA | NA | NA | NA | NA | NA |
| | | VA | 31,913 | 14,300 | 120 | 46 | 45.92 | 39.28 | 31,913 | 14,300 | 1,577 | 546 | 29.84 | 32.57 |
| | | Meta-analysis | 870,659 | 266,311 | 2,514 | 748 | 35.31 | 34.35 | 792,834 | 244,559 | 28,988 | 6,015 | 28.07 | 27.83 |
| | Cardiac arrhythmia | AmbEMR | 56,743 | 15,208 | 147 | 43 | 31.61 | 34.5 | 56,743 | 15,208 | 467 | 163 | 25.54 | 29.19 |
| | | CCAE | 66,430 | 22,337 | 153 | 58 | 28.38 | 32 | 66,430 | 22,337 | 1,301 | 348 | 20.3 | 24.42 |
| | | Clinformatics | 51,069 | 17,320 | 159 | 61 | 38.43 | 43.46 | 51,069 | 17,320 | 1,557 | 461 | 30.64 | 39.13 |
| | | CPRD | 9,120 | 11,390 | 7 | 14 | 9.38 | 15 | 9,120 | 11,390 | 113 | 180 | 6.37 | 6.95 |
| | | DAGermany | 3,883 | 5,040 | <5 | 5 | <15.70 | 12.09 | 3,883 | 5,040 | 22 | 38 | 8.68 | 10.82 |
| | | IMRD | 8,847 | 8,452 | 8 | 12 | 11.06 | 17.35 | 8,847 | 8,452 | 101 | 123 | 5.9 | 6.64 |
| | | MDCD | 8,051 | 2,191 | 37 | 10 | 56.48 | 56.15 | 8,051 | 2,191 | 232 | 40 | 41.47 | 33.06 |
| | | MDCR | 15,763 | 5,165 | 73 | 24 | 56.93 | 57.2 | 15,763 | 5,165 | 726 | 183 | 42.35 | 48.33 |
| | | OpenClaims | 619,285 | 183,147 | 1,505 | 490 | 29.63 | 32.62 | 619,285 | 183,147 | 19,445 | 4,134 | 23.37 | 24.86 |
| | | OptumEHR | 77,008 | 21,581 | 472 | 115 | 75.89 | 65.97 | NA | NA | NA | NA | NA | NA |
| | | VA | 31,766 | 14,275 | 107 | 45 | 41.12 | 38.48 | 31,766 | 14,275 | 1,391 | 508 | 26.84 | 30.95 |
| | | Meta-analysis | 947,965 | 306,106 | <2,673 | 877 | <34.48 | 35.03 | NA | NA | NA | NA | NA | NA |

**Table S7, continued.**

| Comparison | Outcome | Database | 30-day follow-up | | | | | | On-treatment follow-up | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Patients | | Events | | IR | | Patients | | Events | | IR | |
| | | | T | C | T | C | T | C | T | C | T | C | T | C |
| HCQ vs SSZ | Bradycardia | AmbEMR | 57,594 | 15,350 | 17 | <5 | 3.6 | <3.97 | 57,594 | 15,350 | 60 | 15 | 3.2 | 2.63 |
| | | CCAE | 66,640 | 22,373 | 5 | <5 | 0.92 | <2.75 | 66,640 | 22,373 | 69 | 13 | 1.04 | 0.89 |
| | | Clinformatics | 51,259 | 17,386 | 23 | <5 | 5.53 | <3.54 | 51,259 | 17,386 | 256 | 55 | 4.83 | 4.43 |
| | | CPRD | NA | NA | NA | NA | NA | NA | 9,127 | 11,398 | <5 | <5 | <0.28 | <0.19 |
| | | IMRD | NA | NA | NA | NA | NA | NA | 8,852 | 8,460 | <5 | <5 | <0.29 | <0.26 |
| | | MDCD | 8,085 | 2,197 | 6 | <5 | 9.1 | <27.96 | 8,085 | 2,197 | 30 | <5 | 5.14 | <4.02 |
| | | MDCR | NA | NA | NA | NA | NA | NA | 15,830 | 5,190 | 106 | 25 | 5.84 | 6.21 |
| | | OpenClaims | 620,919 | 183,510 | 155 | 56 | 3.04 | 3.72 | 620,919 | 183,510 | 2,791 | 507 | 3.22 | 2.95 |
| | | OptumEHR | 78,425 | 21,911 | 62 | 16 | 9.76 | 9.02 | NA | NA | NA | NA | NA | NA |
| | | VA | 32,018 | 14,345 | 9 | <5 | 3.43 | <4.25 | 32,018 | 14,345 | 231 | 62 | 4.21 | 3.56 |
| | | Meta-analysis | 914,940 | 277,072 | 277 | <97 | 3.7 | <4.28 | 870,324 | 280,209 | <3,553 | <692 | <3.18 | <2.53 |
| | Transient ischemic attack | CCAE | 66,617 | 22,372 | 23 | 6 | 4.25 | 3.3 | 66,617 | 22,372 | 187 | 35 | 2.84 | 2.39 |
| | | Clinformatics | 51,235 | 17,377 | 38 | 9 | 9.14 | 6.38 | 51,235 | 17,377 | 375 | 75 | 7.09 | 6.06 |
| | | MDCD | 8,078 | 2,198 | 7 | <5 | 10.63 | <27.96 | 8,078 | 2,198 | 58 | 10 | 9.97 | 8.08 |
| | | MDCR | 15,821 | 5,187 | 17 | 7 | 13.19 | 16.59 | 15,821 | 5,187 | 202 | 47 | 11.18 | 11.74 |
| | | OpenClaims | 620,812 | 183,511 | 261 | 56 | 5.12 | 3.72 | 620,812 | 183,511 | 3,381 | 615 | 3.91 | 3.58 |
| | | OptumEHR | 78,520 | 21,921 | 26 | 7 | 4.09 | 3.94 | NA | NA | NA | NA | NA | NA |
| | | VA | 32,010 | 14,346 | 10 | 5 | 3.81 | 4.25 | 32,010 | 14,346 | 153 | 49 | 2.78 | 2.81 |
| | | Meta-analysis | 873,093 | 266,912 | 382 | <95 | 5.34 | <4.35 | 794,573 | 244,991 | 4,356 | 831 | 4.1 | 3.75 |
| | Stroke | CCAE | 66,619 | 22,374 | 26 | 8 | 4.8 | 4.4 | 66,619 | 22,374 | 221 | 41 | 3.35 | 2.81 |
| | | Clinformatics | 51,239 | 17,376 | 41 | 12 | 9.86 | 8.51 | 51,239 | 17,376 | 562 | 106 | 10.66 | 8.56 |
| | | MDCD | 8,073 | 2,196 | 13 | <5 | 19.76 | <27.98 | 8,073 | 2,196 | 103 | 15 | 17.82 | 12.13 |
| | | MDCR | 15,825 | 5,186 | 29 | 9 | 22.5 | 21.34 | 15,825 | 5,186 | 300 | 66 | 16.64 | 16.53 |
| | | OpenClaims | 620,748 | 183,482 | 383 | 98 | 7.52 | 6.51 | 620,748 | 183,482 | 5,413 | 1,122 | 6.27 | 6.54 |
| | | OptumEHR | 78,442 | 21,897 | 52 | 10 | 8.18 | 5.64 | NA | NA | NA | NA | NA | NA |
| | | VA | 32,008 | 14,341 | 19 | 8 | 7.24 | 6.8 | 32,008 | 14,341 | 241 | 70 | 4.38 | 4.01 |
| | | Meta-analysis | 872,954 | 266,852 | 563 | <150 | 7.88 | <6.87 | NA | NA | NA | NA | NA | NA |
| | Venous thromboembolism | AmbEMR | 57,262 | 15,281 | 52 | 17 | 11.07 | 13.56 | 57,262 | 15,281 | 201 | 68 | 10.81 | 12.05 |
| | | CCAE | 66,528 | 22,358 | 70 | 23 | 12.96 | 12.67 | 66,528 | 22,358 | 650 | 152 | 9.96 | 10.48 |
| | | Clinformatics | 51,153 | 17,355 | 104 | 31 | 25.08 | 22.03 | 51,153 | 17,355 | 949 | 207 | 18.23 | 16.87 |
| | | CPRD | 9,118 | 11,390 | <5 | 11 | <6.70 | 11.79 | 9,118 | 11,390 | 130 | 177 | 7.35 | 6.79 |
| | | DAGermany | 3,881 | 5,033 | <5 | 6 | <15.70 | 14.53 | 3,881 | 5,033 | 34 | 47 | 13.56 | 13.43 |
| | | IMRD | 8,841 | 8,455 | 5 | 10 | 6.92 | 14.45 | 8,841 | 8,455 | 116 | 123 | 6.79 | 6.59 |
| | | MDCD | 8,059 | 2,196 | 24 | <5 | 36.57 | <27.98 | 8,059 | 2,196 | 157 | 19 | 27.6 | 15.47 |
| | | MDCR | 15,780 | 5,176 | 41 | 8 | 31.9 | 18.99 | 15,780 | 5,176 | 442 | 89 | 24.86 | 22.63 |
| | | OpenClaims | 620,093 | 183,330 | 788 | 237 | 15.48 | 15.75 | 620,093 | 183,330 | 10,006 | 2,001 | 11.74 | 11.77 |
| | | OptumEHR | 78,092 | 21,804 | 241 | 52 | 38.15 | 29.47 | NA | NA | NA | NA | NA | NA |
| | | VA | 31,962 | 14,328 | 42 | 22 | 16.03 | 18.73 | 31,962 | 14,328 | 583 | 208 | 10.76 | 12.09 |
| | | Meta-analysis | 950,769 | 306,706 | <1,377 | <422 | <17.70 | <16.81 | 872,677 | 284,902 | 13,268 | 3,091 | 12.03 | 11.32 |

**Table S7, continued.**

| Comparison | Outcome | Database | 30-day follow-up | | | | | | On-treatment follow-up | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Patients | | Events | | IR | | Patients | | Events | | IR | |
| | | | T | C | T | C | T | C | T | C | T | C | T | C |
| HCQ vs SSZ | Gastrointestinal bleeding | CCAE | 66,621 | 22,357 | 40 | 12 | 7.39 | 6.61 | 66,621 | 22,357 | 332 | 54 | 5.05 | 3.69 |
| | | Clinformatics | 51,218 | 17,345 | 68 | 13 | 16.37 | 9.24 | 51,218 | 17,345 | 658 | 118 | 12.51 | 9.53 |
| | | MDCD | 8,071 | 2,191 | 16 | <5 | 24.33 | <28.05 | 8,071 | 2,191 | 109 | 13 | 18.9 | 10.51 |
| | | MDCR | 15,813 | 5,177 | 31 | 7 | 24.06 | 16.62 | 15,813 | 5,177 | 350 | 62 | 19.49 | 15.49 |
| | | OpenClaims | 620,631 | 183,371 | 438 | 126 | 8.6 | 8.37 | 620,631 | 183,371 | 6,086 | 1,108 | 7.06 | 6.46 |
| | | OptumEHR | 78,411 | 21,890 | 78 | 18 | 12.28 | 10.15 | NA | NA | NA | NA | NA | NA |
| | | VA | 31,993 | 14,334 | 26 | 16 | 9.91 | 13.62 | 31,993 | 14,334 | 390 | 143 | 7.12 | 8.23 |
| | | Meta-analysis | 872,758 | 266,665 | 697 | <197 | 9.76 | <9.03 | NA | NA | NA | NA | NA | NA |
| | Acute renal failure | CCAE | 66,584 | 22,362 | 72 | 27 | 13.32 | 14.87 | 66,584 | 22,362 | 526 | 96 | 8.01 | 6.59 |
| | | Clinformatics | 51,166 | 17,353 | 163 | 54 | 39.32 | 38.39 | 51,166 | 17,353 | 1,377 | 298 | 26.47 | 24.32 |
| | | MDCD | 8,051 | 2,189 | 41 | 13 | 62.61 | 73.1 | 8,051 | 2,189 | 256 | 44 | 45.23 | 36.48 |
| | | MDCR | 15,797 | 5,181 | 60 | 17 | 46.67 | 40.37 | 15,797 | 5,181 | 608 | 133 | 34.22 | 33.69 |
| | | OpenClaims | 620,101 | 183,354 | 1,061 | 308 | 20.85 | 20.47 | 620,101 | 183,354 | 13,812 | 2,404 | 16.18 | 14.1 |
| | | OptumEHR | 78,010 | 21,797 | 186 | 42 | 29.45 | 23.81 | NA | NA | NA | NA | NA | NA |
| | | VA | 31,947 | 14,317 | 102 | 35 | 38.98 | 29.84 | 31,947 | 14,317 | 1,214 | 307 | 22.63 | 17.85 |
| | | Meta-analysis | 871,656 | 266,553 | 1,685 | 496 | 23.63 | 22.75 | 793,646 | 244,756 | 17,793 | 3,282 | 16.97 | 14.94 |
| | End stage renal disease | AmbEMR | NA | NA | NA | NA | NA | NA | 57,647 | 15,355 | 12 | <5 | 0.64 | <0.88 |
| | | CCAE | 66,641 | 22,378 | <5 | <5 | <0.92 | <2.75 | 66,641 | 22,378 | 48 | 8 | 0.73 | 0.55 |
| | | Clinformatics | 51,271 | 17,389 | 7 | <5 | 1.68 | <3.54 | 51,271 | 17,389 | 118 | 19 | 2.22 | 1.52 |
| | | MDCD | NA | NA | NA | NA | NA | NA | 8,087 | 2,198 | 15 | <5 | 2.56 | <4.01 |
| | | MDCR | 15,838 | 5,191 | <5 | <5 | <3.87 | <11.83 | 15,838 | 5,191 | 56 | 7 | 3.07 | 1.73 |
| | | OpenClaims | 621,009 | 183,543 | 70 | 8 | 1.37 | 0.53 | 621,009 | 183,543 | 1,298 | 174 | 1.49 | 1.01 |
| | | OptumEHR | 78,526 | 21,924 | 27 | <5 | 4.24 | <2.82 | NA | NA | NA | NA | NA | NA |
| | | VA | 32,020 | 14,348 | 5 | <5 | 1.9 | <4.25 | 32,020 | 14,348 | 86 | 27 | 1.56 | 1.54 |
| | | Meta-analysis | 865,305 | 264,773 | <119 | <33 | <1.68 | <1.52 | 852,513 | 260,402 | 1,633 | <245 | 1.5 | <1.07 |
| | Hepatic failure | CCAE | 66,638 | 22,378 | 6 | <5 | 1.11 | <2.75 | 66,638 | 22,378 | 50 | 11 | 0.76 | 0.75 |
| | | Clinformatics | 51,267 | 17,387 | 13 | <5 | 3.13 | <3.54 | 51,267 | 17,387 | 102 | 26 | 1.92 | 2.09 |
| | | DAGermany | NA | NA | NA | NA | NA | NA | 3,887 | 5,047 | <5 | <5 | <1.95 | <1.40 |
| | | MDCD | 8,085 | 2,198 | <5 | <5 | <7.58 | <27.95 | 8,085 | 2,198 | 25 | 6 | 4.26 | 4.82 |
| | | MDCR | NA | NA | NA | NA | NA | NA | 15,841 | 5,189 | 32 | 5 | 1.75 | 1.23 |
| | | OpenClaims | 621,042 | 183,551 | 42 | 23 | 0.82 | 1.53 | 621,042 | 183,551 | 729 | 151 | 0.84 | 0.87 |
| | | OptumEHR | 78,529 | 21,916 | 32 | 9 | 5.03 | 5.07 | NA | NA | NA | NA | NA | NA |
| | | VA | 32,025 | 14,348 | 5 | <5 | 1.9 | <4.25 | 32,025 | 14,348 | 61 | 14 | 1.1 | 0.8 |
| | | Meta-analysis | 857,586 | 261,778 | <103 | <52 | <1.47 | <2.43 | 798,785 | 250,098 | <1,004 | <218 | <0.94 | <0.96 |
| | Acute pancreatitis | CCAE | 66,637 | 22,374 | 22 | 7 | 4.06 | 3.85 | 66,637 | 22,374 | 143 | 34 | 2.17 | 2.32 |
| | | Clinformatics | 51,259 | 17,384 | 21 | 9 | 5.05 | 6.38 | 51,259 | 17,384 | 171 | 50 | 3.22 | 4.02 |
| | | MDCD | 8,077 | 2,196 | 10 | <5 | 15.19 | <27.97 | 8,077 | 2,196 | 55 | 8 | 9.47 | 6.45 |
| | | MDCR | 15,833 | 5,188 | 6 | <5 | 4.65 | <11.84 | 15,833 | 5,188 | 62 | 15 | 3.4 | 3.7 |
| | | OpenClaims | 620,956 | 183,525 | 155 | 50 | 3.04 | 3.32 | 620,956 | 183,525 | 1,881 | 390 | 2.17 | 2.26 |
| | | OptumEHR | 78,522 | 21,921 | 21 | 5 | 3.3 | 2.82 | NA | NA | NA | NA | NA | NA |
| | | VA | 32,023 | 14,347 | 12 | <5 | 4.57 | <4.25 | 32,023 | 14,347 | 106 | 46 | 1.92 | 2.63 |
| | | Meta-analysis | 873,307 | 266,935 | 247 | <86 | 3.45 | <3.94 | 794,785 | 245,014 | 2,418 | 543 | 2.27 | 2.44 |

**Table S7, continued.**

| Comparison | Outcome | Database | 30-day follow-up | | | | | | On-treatment follow-up | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Patients | | Events | | IR | | Patients | | Events | | IR | |
| | | | T | C | T | C | T | C | T | C | T | C | T | C |
| AZM vs AMX | All-cause mortality | Clinformatics | 23,597 | 24,521 | 17 | 17 | 8.88 | 8.55 | 23,597 | 24,521 | 268 | 276 | 15.56 | 18.85 |
| | | VA | 6,234 | 8,005 | 91 | 52 | 179.23 | 79.42 | 6,234 | 8,005 | 550 | 518 | 51.16 | 45.97 |
| | | Meta-analysis | 29,831 | 32,526 | 108 | 69 | 44.58 | 26.12 | 29,831 | 32,526 | 818 | 794 | 29.24 | 30.64 |
| | | CCAE | 32,610 | 32,507 | 13 | 11 | 4.92 | 4.17 | 32,610 | 32,507 | 117 | 94 | 4.33 | 4.33 |
| | | Clinformatics | 23,565 | 24,484 | 30 | 29 | 15.7 | 14.62 | 23,565 | 24,484 | 179 | 147 | 10.6 | 10.19 |
| | | MDCD | 3,803 | 3,808 | <5 | 6 | <16.21 | 19.4 | 3,803 | 3,808 | 29 | 27 | 11.46 | 13.46 |
| | | MDCR | 8,119 | 9,254 | 16 | 9 | 24.33 | 11.96 | 8,119 | 9,254 | 166 | 140 | 20.41 | 17.34 |
| | | OpenClaims | 216,028 | 232,938 | 182 | 173 | 10.26 | 9.05 | 216,028 | 232,938 | 2,065 | 1,732 | 8.11 | 7.94 |
| | | OptumEHR | 18,477 | 16,424 | 26 | 20 | 17.35 | 15.01 | NA | NA | NA | NA | NA | NA |
| | | VA | 6,203 | 7,978 | 33 | 19 | 65.53 | 29.15 | 6,203 | 7,978 | 154 | 127 | 14.79 | 11.59 |
| | | Meta-analysis | 308,805 | 327,393 | <305 | 267 | <12.08 | 9.97 | 290,328 | 310,969 | 2,710 | 2,267 | 8.48 | 8.24 |
| | Cardiovascular events | CCAE | 32,540 | 32,453 | 68 | 57 | 25.8 | 21.67 | 32,540 | 32,453 | 467 | 351 | 17.73 | 16.54 |
| | | Clinformatics | 23,434 | 24,361 | 147 | 137 | 77.54 | 69.59 | 23,434 | 24,361 | 723 | 669 | 45.56 | 49.38 |
| | | MDCD | 3,759 | 3,781 | 31 | 30 | 102.07 | 97.98 | 3,759 | 3,781 | 157 | 122 | 69.38 | 67.74 |
| | | MDCR | 8,030 | 9,188 | 93 | 59 | 143.76 | 79.2 | 8,030 | 9,188 | 657 | 573 | 92.6 | 78.6 |
| | | OpenClaims | 215,278 | 232,274 | 901 | 784 | 51.08 | 41.18 | 215,278 | 232,274 | 7,835 | 6,884 | 32.54 | 33.34 |
| | | OptumEHR | 17,963 | 16,221 | 123 | 80 | 84.71 | 60.92 | NA | NA | NA | NA | NA | NA |
| | | VA | 6,047 | 7,866 | 183 | 87 | 378.81 | 136.03 | 6,047 | 7,866 | 544 | 445 | 58.44 | 44.08 |
| | | Meta-analysis | NA | NA | NA | NA | NA | NA | 289,088 | 309,923 | 10,383 | 9,044 | 34.42 | 34.73 |
| | Cardiac arrhythmia | AmbEMR | 13,076 | 11,977 | 27 | 25 | 25.18 | 25.46 | 13,076 | 11,977 | 116 | 90 | 20.7 | 18.79 |
| | | CCAE | 32,510 | 32,423 | 113 | 67 | 42.94 | 25.5 | 32,510 | 32,423 | 711 | 486 | 28.53 | 23.76 |
| | | Clinformatics | 23,475 | 24,403 | 90 | 76 | 47.34 | 38.49 | 23,475 | 24,403 | 556 | 482 | 35.52 | 36.2 |
| | | MDCD | 3,781 | 3,787 | 14 | 18 | 45.72 | 58.59 | 3,781 | 3,787 | 88 | 77 | 37.42 | 41.8 |
| | | MDCR | 8,084 | 9,210 | 45 | 48 | 68.86 | 64.24 | 8,084 | 9,210 | 354 | 361 | 47.87 | 49.98 |
| | | OpenClaims | 215,473 | 232,391 | 568 | 589 | 32.15 | 30.91 | 215,473 | 232,391 | 5,724 | 4,989 | 23.82 | 24.22 |
| | | OptumEHR | 18,022 | 16,138 | 153 | 111 | 105.13 | 85.09 | NA | NA | NA | NA | NA | NA |
| | | VA | 6,168 | 7,935 | 58 | 47 | 116.1 | 72.64 | 6,168 | 7,935 | 297 | 289 | 31.93 | 29.25 |
| | Bradycardia | AmbEMR | NA | NA | NA | NA | NA | NA | 13,193 | 12,080 | 14 | 14 | 2.36 | 2.81 |
| | | CCAE | 32,619 | 32,516 | <5 | <5 | <1.89 | <1.90 | 32,619 | 32,516 | 43 | 50 | 1.58 | 2.29 |
| | | Clinformatics | 23,580 | 24,509 | 10 | 17 | 5.23 | 8.56 | 23,580 | 24,509 | 108 | 96 | 6.34 | 6.61 |
| | | MDCD | 3,807 | 3,810 | <5 | <5 | <16.19 | <16.15 | 3,807 | 3,810 | 19 | 11 | 7.41 | 5.42 |
| | | MDCR | 8,124 | 9,268 | 5 | <5 | 7.59 | <6.63 | 8,124 | 9,268 | 70 | 86 | 8.51 | 10.63 |
| | | OpenClaims | 216,124 | 233,035 | 72 | 78 | 4.06 | 4.08 | 216,124 | 233,035 | 1,115 | 1,069 | 4.35 | 4.88 |
| | | OptumEHR | 18,546 | 16,432 | 15 | 23 | 9.97 | 17.26 | NA | NA | NA | NA | NA | NA |
| | | VA | 6,227 | 8,000 | <5 | <5 | <9.86 | <7.64 | 6,227 | 8,000 | 64 | 60 | 6.1 | 5.42 |
| | | Meta-analysis | 309,027 | 327,570 | <117 | <138 | <4.63 | <5.15 | 303,674 | 323,218 | 1,433 | 1,386 | 4.37 | 4.93 |

**Table S7, continued.**

| Comparison | Outcome | Database | 30-day follow-up | | | | | | On-treatment follow-up | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Patients | | Events | | IR | | Patients | | Events | | IR | |
| | | | T | C | T | C | T | C | T | C | T | C | T | C |
| AZM vs AMX | Transient ischemic attack | CCAE | 32,609 | 32,505 | 5 | 11 | 1.89 | 4.17 | 32,609 | 32,505 | 111 | 77 | 4.11 | 3.55 |
| | | Clinformatics | 23,577 | 24,501 | 20 | 24 | 10.46 | 12.09 | 23,577 | 24,501 | 122 | 120 | 7.18 | 8.32 |
| | | MDCD | 3,802 | 3,808 | 7 | <5 | 22.72 | <16.16 | 3,802 | 3,808 | 27 | 15 | 10.62 | 7.51 |
| | | MDCR | 8,121 | 9,259 | 9 | 10 | 13.67 | 13.28 | 8,121 | 9,259 | 118 | 102 | 14.53 | 12.6 |
| | | OpenClaims | 216,102 | 232,985 | 96 | 102 | 5.41 | 5.33 | 216,102 | 232,985 | 1,306 | 1,102 | 5.11 | 5.04 |
| | | OptumEHR | 18,563 | 16,456 | 9 | 5 | 5.98 | 3.74 | NA | NA | NA | NA | NA | NA |
| | | VA | 6,231 | 8,000 | 12 | 5 | 23.67 | 7.64 | 6,231 | 8,000 | 54 | 41 | 5.11 | 3.69 |
| | | Meta-analysis | 309,005 | 327,514 | 158 | <162 | 6.25 | <6.05 | 290,442 | 311,058 | 1,738 | 1,457 | 5.42 | 5.28 |
| | Stroke | CCAE | 32,609 | 32,508 | 12 | 11 | 4.54 | 4.17 | 32,609 | 32,508 | 131 | 94 | 4.85 | 4.33 |
| | | Clinformatics | 23,572 | 24,490 | 33 | 34 | 17.26 | 17.14 | 23,572 | 24,490 | 174 | 157 | 10.28 | 10.87 |
| | | MDCD | 3,803 | 3,808 | 7 | 7 | 22.71 | 22.63 | 3,803 | 3,808 | 36 | 29 | 14.16 | 14.55 |
| | | MDCR | 8,118 | 9,257 | 17 | 13 | 25.85 | 17.27 | 8,118 | 9,257 | 156 | 173 | 19.33 | 21.57 |
| | | OpenClaims | 216,089 | 232,948 | 155 | 159 | 8.74 | 8.32 | 216,089 | 232,948 | 2,063 | 1,858 | 8.12 | 8.55 |
| | | OptumEHR | 18,538 | 16,433 | 25 | 9 | 16.63 | 6.75 | NA | NA | NA | NA | NA | NA |
| | | VA | 6,215 | 7,995 | 10 | 15 | 19.77 | 22.96 | 6,215 | 7,995 | 76 | 83 | 7.23 | 7.5 |
| | | Meta-analysis | 308,944 | 327,439 | 259 | 248 | 10.25 | 9.26 | 290,406 | 311,006 | 2,636 | 2,394 | 8.26 | 8.72 |
| | Venous thromboembolism | AmbEMR | 13,133 | 12,024 | 11 | 19 | 10.21 | 19.27 | 13,133 | 12,024 | 51 | 57 | 8.71 | 11.72 |
| | | CCAE | 32,559 | 32,467 | 40 | 40 | 15.16 | 15.2 | 32,559 | 32,467 | 339 | 227 | 12.8 | 10.59 |
| | | Clinformatics | 23,540 | 24,459 | 54 | 63 | 28.3 | 31.82 | 23,540 | 24,459 | 330 | 303 | 20.08 | 21.49 |
| | | MDCD | 3,793 | 3,797 | 8 | 18 | 26.03 | 58.49 | 3,793 | 3,797 | 81 | 61 | 33.31 | 31.49 |
| | | MDCR | 8,104 | 9,239 | 23 | 24 | 35.04 | 31.96 | 8,104 | 9,239 | 228 | 204 | 28.93 | 26.03 |
| | | OpenClaims | 215,805 | 232,676 | 320 | 357 | 18.07 | 18.7 | 215,805 | 232,676 | 3,662 | 3,137 | 14.74 | 14.73 |
| | | OptumEHR | 18,394 | 16,335 | 112 | 57 | 75.28 | 43.08 | NA | NA | NA | NA | NA | NA |
| | | VA | 6,203 | 7,977 | 32 | 23 | 63.53 | 35.31 | 6,203 | 7,977 | 175 | 165 | 17.32 | 15.45 |
| | | Meta-analysis | 321,531 | 338,974 | 600 | 601 | 22.82 | 21.68 | 303,137 | 322,639 | 4,866 | 4,154 | 15.32 | 15.17 |
| | Gastrointestinal bleeding | CCAE | 32,609 | 32,486 | 20 | 31 | 7.56 | 11.77 | 32,609 | 32,486 | 137 | 128 | 5.08 | 5.9 |
| | | Clinformatics | 23,568 | 24,453 | 39 | 37 | 20.41 | 18.68 | 23,568 | 24,453 | 227 | 189 | 13.45 | 13.14 |
| | | MDCD | 3,805 | 3,797 | 8 | 11 | 25.93 | 35.67 | 3,805 | 3,797 | 58 | 35 | 23.17 | 17.82 |
| | | MDCR | 8,118 | 9,231 | 16 | 28 | 24.33 | 37.34 | 8,118 | 9,231 | 172 | 170 | 21.23 | 21.34 |
| | | OpenClaims | 216,032 | 232,795 | 213 | 220 | 12.01 | 11.52 | 216,032 | 232,795 | 2,245 | 2,009 | 8.85 | 9.26 |
| | | OptumEHR | 18,530 | 16,391 | 37 | 22 | 24.62 | 16.54 | NA | NA | NA | NA | NA | NA |
| | | VA | 6,211 | 7,952 | 31 | 31 | 61.43 | 47.76 | 6,211 | 7,952 | 122 | 125 | 11.67 | 11.44 |
| | | Meta-analysis | 308,873 | 327,105 | 364 | 380 | 14.41 | 14.2 | 290,343 | 310,714 | 2,961 | 2,656 | 9.3 | 9.69 |
| | Acute renal failure | CCAE | 32,576 | 32,451 | 50 | 36 | 18.94 | 13.68 | 32,576 | 32,451 | 286 | 220 | 10.67 | 10.23 |
| | | Clinformatics | 23,534 | 24,413 | 104 | 87 | 54.57 | 44.05 | 23,534 | 24,413 | 476 | 444 | 28.9 | 31.72 |
| | | MDCD | 3,774 | 3,789 | 21 | 27 | 68.81 | 87.98 | 3,774 | 3,789 | 110 | 77 | 46.36 | 40.34 |
| | | MDCR | 8,091 | 9,224 | 47 | 31 | 71.85 | 41.38 | 8,091 | 9,224 | 348 | 311 | 44.2 | 40.07 |
| | | OpenClaims | 215,716 | 232,429 | 500 | 603 | 28.26 | 31.64 | 215,716 | 232,429 | 4,977 | 4,565 | 20.04 | 21.49 |
| | | OptumEHR | 18,134 | 16,262 | 86 | 70 | 58.59 | 53.16 | NA | NA | NA | NA | NA | NA |
| | | VA | 6,133 | 7,907 | 146 | 117 | 296.69 | 182.62 | 6,133 | 7,907 | 416 | 410 | 42.7 | 39.97 |
| | | Meta-analysis | NA | NA | NA | NA | NA | NA | 289,824 | 310,213 | 6,613 | 6,027 | 21.22 | 22.5 |

**Table S7, continued.**

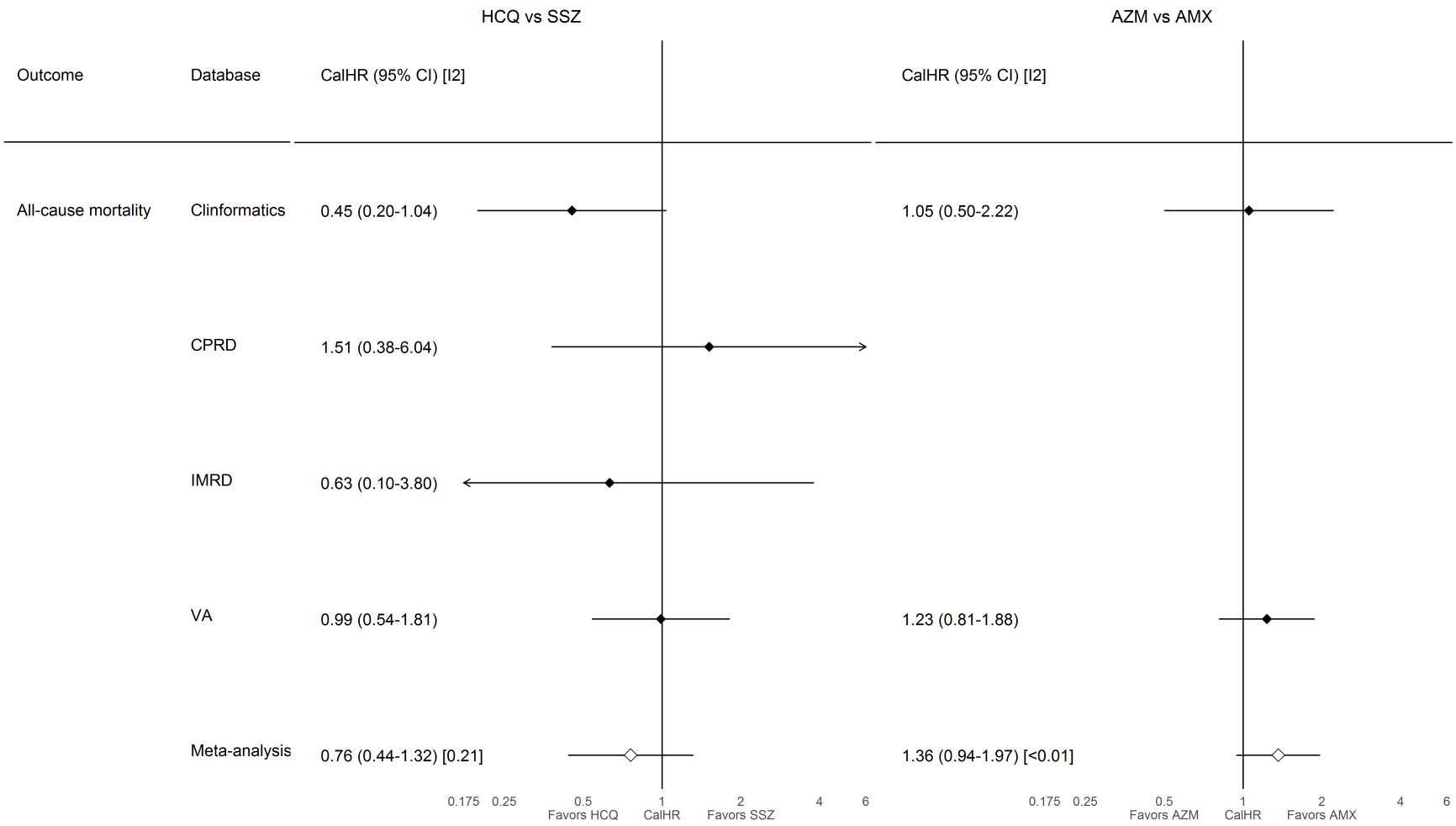
| Comparison | Outcome | Database | 30-day follow-up | | | | | | On-treatment follow-up | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Patients | | Events | | IR | | Patients | | Events | | IR | |
| | | | T | C | T | C | T | C | T | C | T | C | T | C |
| AZM vs AMX | End stage renal disease | AmbEMR | NA | NA | NA | NA | NA | NA | 13,197 | 12,079 | 7 | 5 | 1.18 | 1 |
| | | CCAE | 32,620 | 32,518 | <5 | <5 | <1.89 | <1.90 | 32,620 | 32,518 | 30 | 20 | 1.1 | 0.91 |
| | | Clinformatics | 23,594 | 24,521 | <5 | 6 | <2.61 | 3.02 | 23,594 | 24,521 | 31 | 36 | 1.8 | 2.46 |
| | | MDCD | 3,806 | 3,809 | <5 | <5 | <16.20 | <16.15 | 3,806 | 3,809 | 18 | 10 | 6.96 | 4.96 |
| | | MDCR | 8,130 | 9,270 | 7 | <5 | 10.62 | <6.63 | 8,130 | 9,270 | 23 | 28 | 2.75 | 3.4 |
| | | OpenClaims | 216,166 | 233,078 | 36 | 41 | 2.03 | 2.14 | 216,166 | 233,078 | 558 | 507 | 2.16 | 2.3 |
| | | OptumEHR | 18,557 | 16,465 | 9 | 5 | 5.98 | 3.74 | NA | NA | NA | NA | NA | NA |
| | | VA | 6,232 | 8,003 | 8 | <5 | 15.77 | <7.64 | 6,232 | 8,003 | 37 | 38 | 3.48 | 3.39 |
| | | Meta-analysis | 309,105 | 327,664 | <75 | <72 | <2.97 | <2.69 | 303,745 | 323,278 | 704 | 644 | 2.13 | 2.27 |
| | Hepatic failure | CCAE | 32,621 | 32,519 | <5 | 5 | <1.89 | 1.9 | 32,621 | 32,519 | 30 | 28 | 1.1 | 1.28 |
| | | Clinformatics | 23,592 | 24,516 | <5 | <5 | <2.61 | <2.52 | 23,592 | 24,516 | 38 | 27 | 2.2 | 1.84 |
| | | MDCD | 3,807 | 3,809 | <5 | <5 | <16.19 | <16.15 | 3,807 | 3,809 | 6 | 6 | 2.3 | 2.94 |
| | | MDCR | 8,130 | 9,269 | <5 | <5 | <7.58 | <6.63 | 8,130 | 9,269 | 18 | 15 | 2.15 | 1.81 |
| | | OpenClaims | 216,181 | 233,088 | 22 | 27 | 1.24 | 1.41 | 216,181 | 233,088 | 306 | 311 | 1.18 | 1.41 |
| | | OptumEHR | 18,548 | 16,466 | 15 | 11 | 9.97 | 8.23 | NA | NA | NA | NA | NA | NA |
| | | VA | 6,233 | 8,005 | 6 | <5 | 11.82 | <7.64 | 6,233 | 8,005 | 26 | 19 | 2.42 | 1.69 |
| | | Meta-analysis | 309,112 | 327,672 | <63 | <63 | <2.49 | <2.35 | 290,564 | 311,206 | 424 | 406 | 1.31 | 1.45 |
| | Acute pancreatitis | CCAE | 32,611 | 32,513 | 6 | 8 | 2.27 | 3.03 | 32,611 | 32,513 | 70 | 55 | 2.58 | 2.52 |
| | | Clinformatics | 23,590 | 24,511 | 11 | 10 | 5.75 | 5.03 | 23,590 | 24,511 | 62 | 49 | 3.62 | 3.36 |
| | | MDCD | 3,800 | 3,808 | <5 | 5 | <16.22 | 16.16 | 3,800 | 3,808 | 23 | 21 | 9.06 | 10.48 |
| | | MDCR | 8,129 | 9,268 | <5 | <5 | <7.59 | <6.63 | 8,129 | 9,268 | 32 | 32 | 3.84 | 3.89 |
| | | OpenClaims | 216,145 | 232,998 | 64 | 80 | 3.61 | 4.18 | 216,145 | 232,998 | 713 | 595 | 2.77 | 2.7 |
| | | OptumEHR | 18,572 | 16,463 | 7 | 9 | 4.65 | 6.74 | NA | NA | NA | NA | NA | NA |
| | | VA | 6,232 | 7,995 | 7 | 6 | 13.8 | 9.18 | 6,232 | 7,995 | 39 | 41 | 3.68 | 3.68 |
| | | Meta-analysis | 309,079 | 327,556 | <105 | <123 | <4.15 | <4.59 | 290,507 | 311,093 | 939 | 793 | 2.91 | 2.85 |

T=target therapy; C=comparator therapy; IR=incidence rate; py=person-years at risk; NA=non-applicable (not reported because of failed diagnostics or on-treatment follow-up unavailable); CV=cardiovascular; HCQ=hydroxychloroquine; SSZ=sulfasalazine; AZM=HCQ+Azithromycin; AMX=HCQ+amoxicillin; AmbEMR=IQVIA Ambulatory EMR; CCAE=IBM Commercial Database; Clinformatics=Optum de-identified Clinformatics Data Mart Database; CPRD=Clinical Practice Research Datalink; DAGermany=IQVIA Disease Analyzer Germany; IMRD=IQVIA UK Integrated Medical Record Data; MDCD=IBM IBM Multi-state Medicaid; MDCR=IBM Medicare Supplemental Database; OpenClaims=IQVIA Open Claims; OptumEHR=Optum de-identified Electronic Health Record dataset; VA=Department of Veterans Affairs

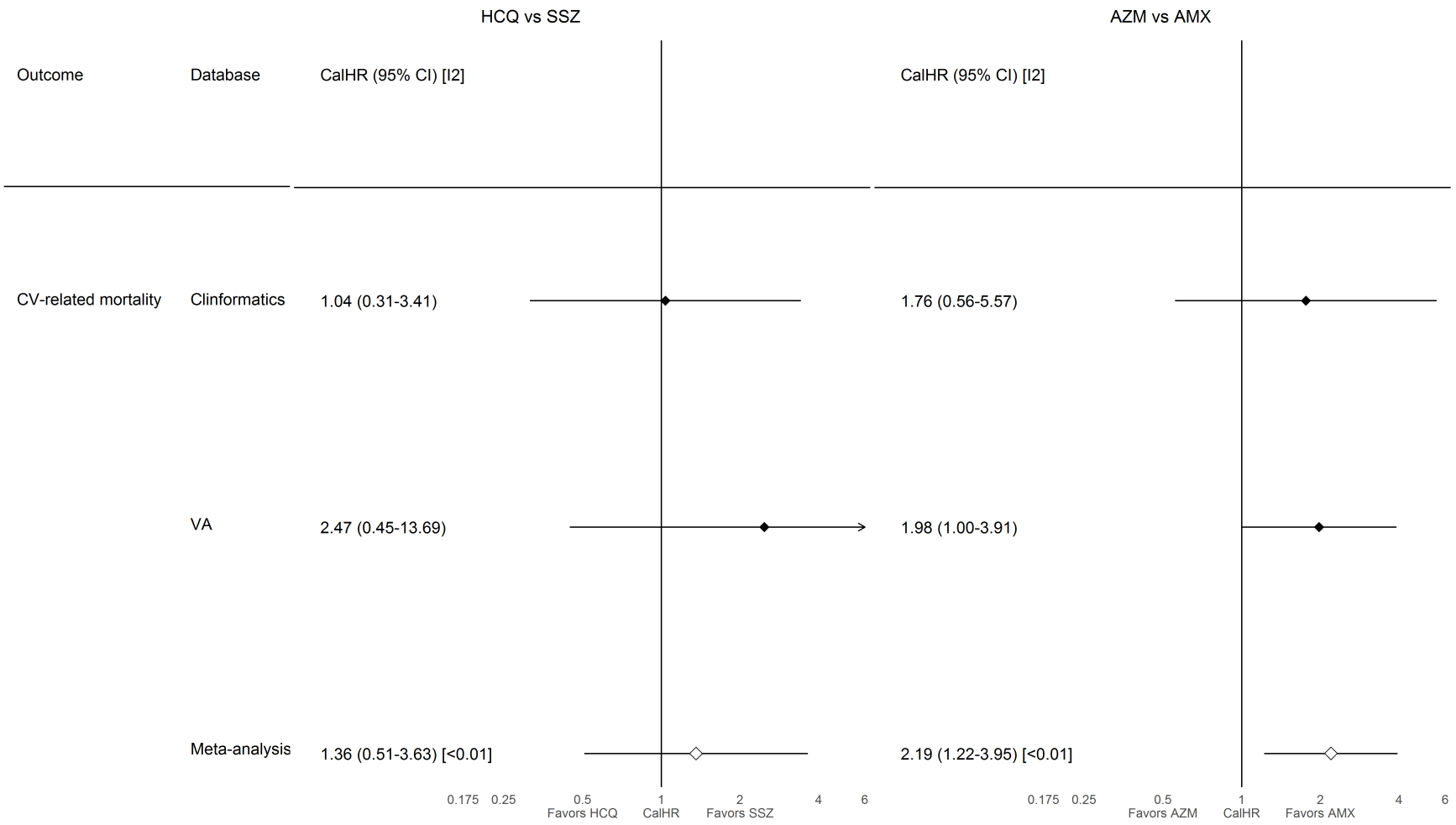
## S8. Calibrated hazard ratio forest plots

### S8.1. 30-day follow-up

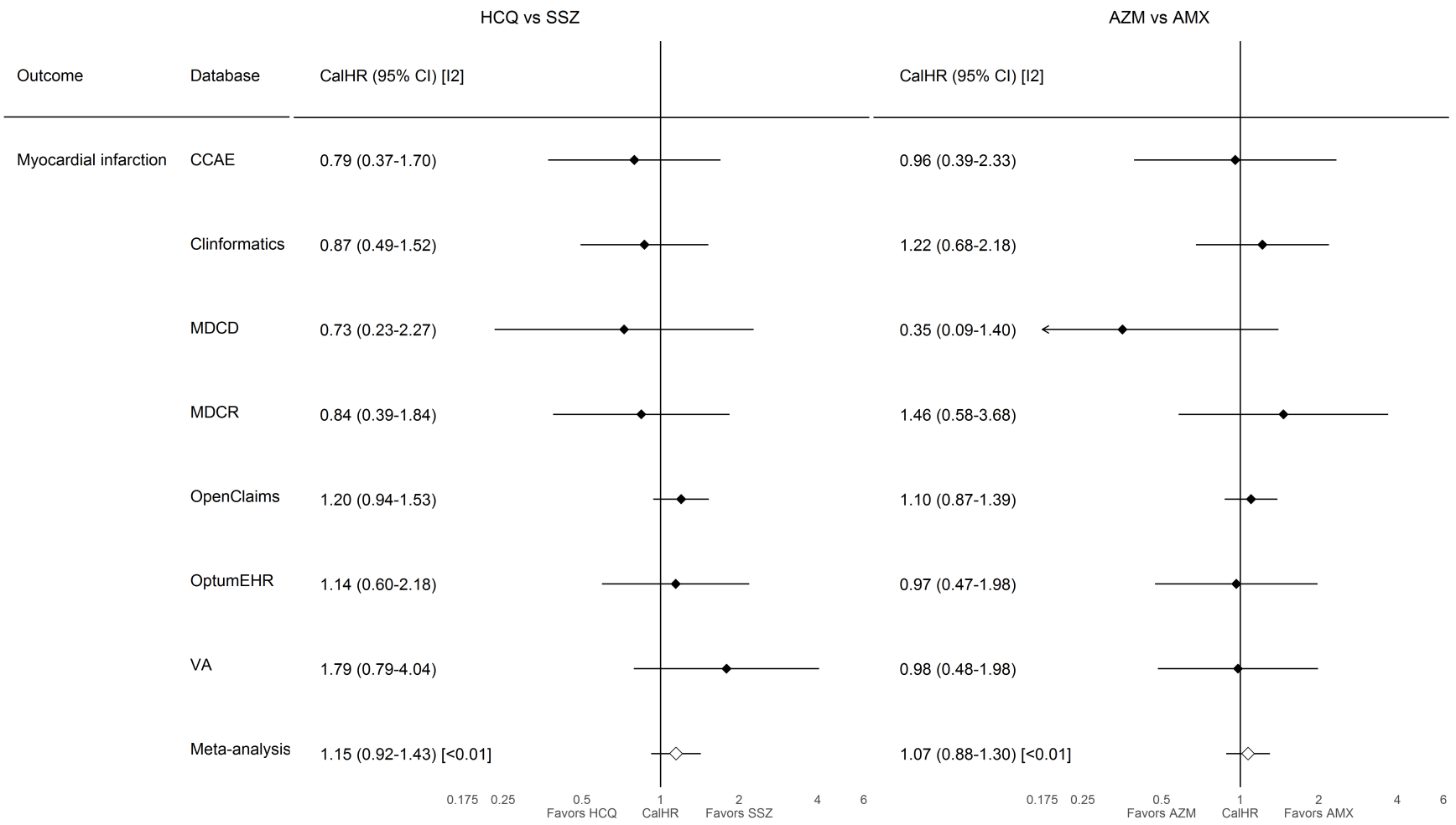
#### S8.1.1. All-cause mortality



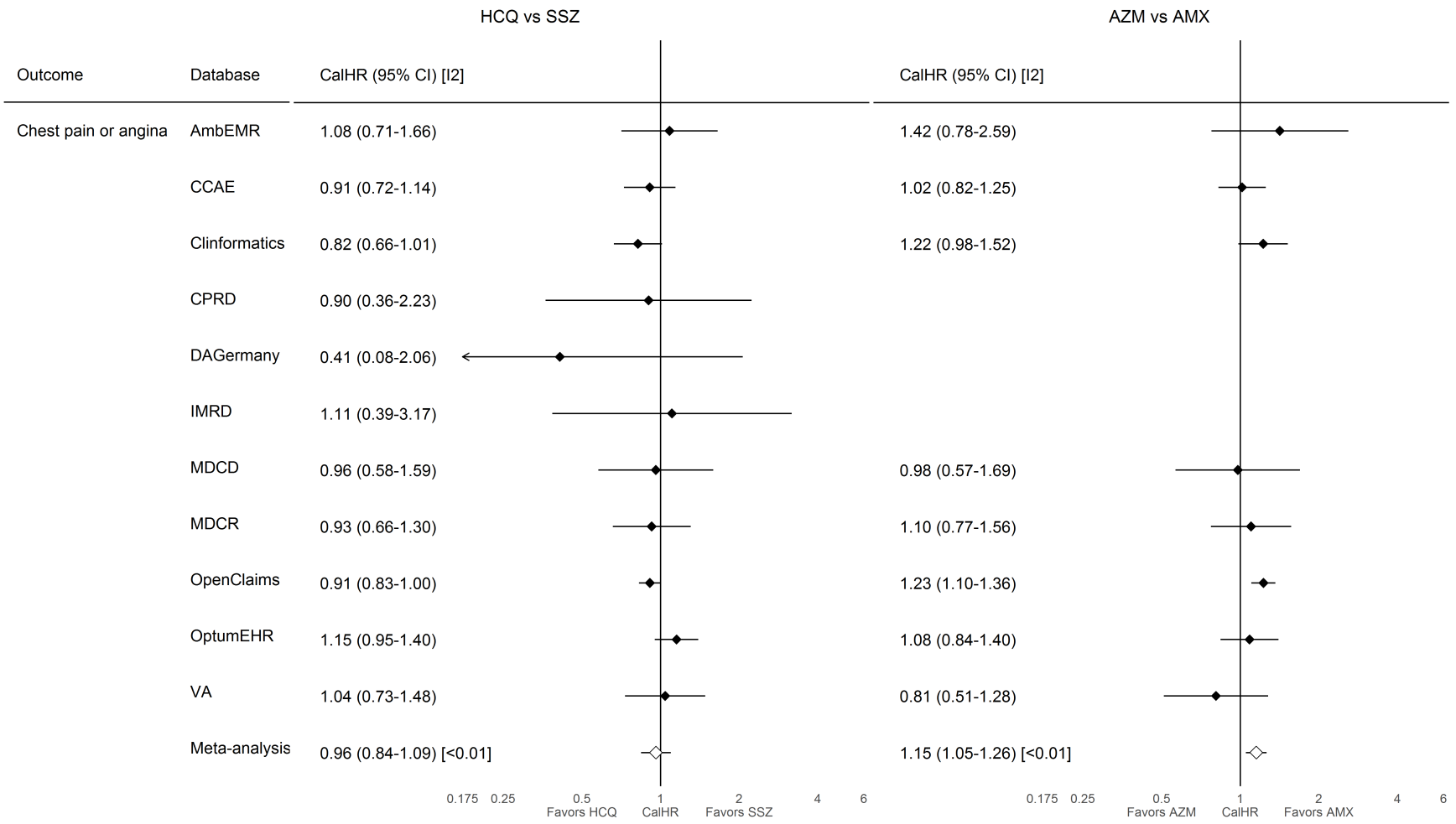
## S8.1.2. CV-related mortality



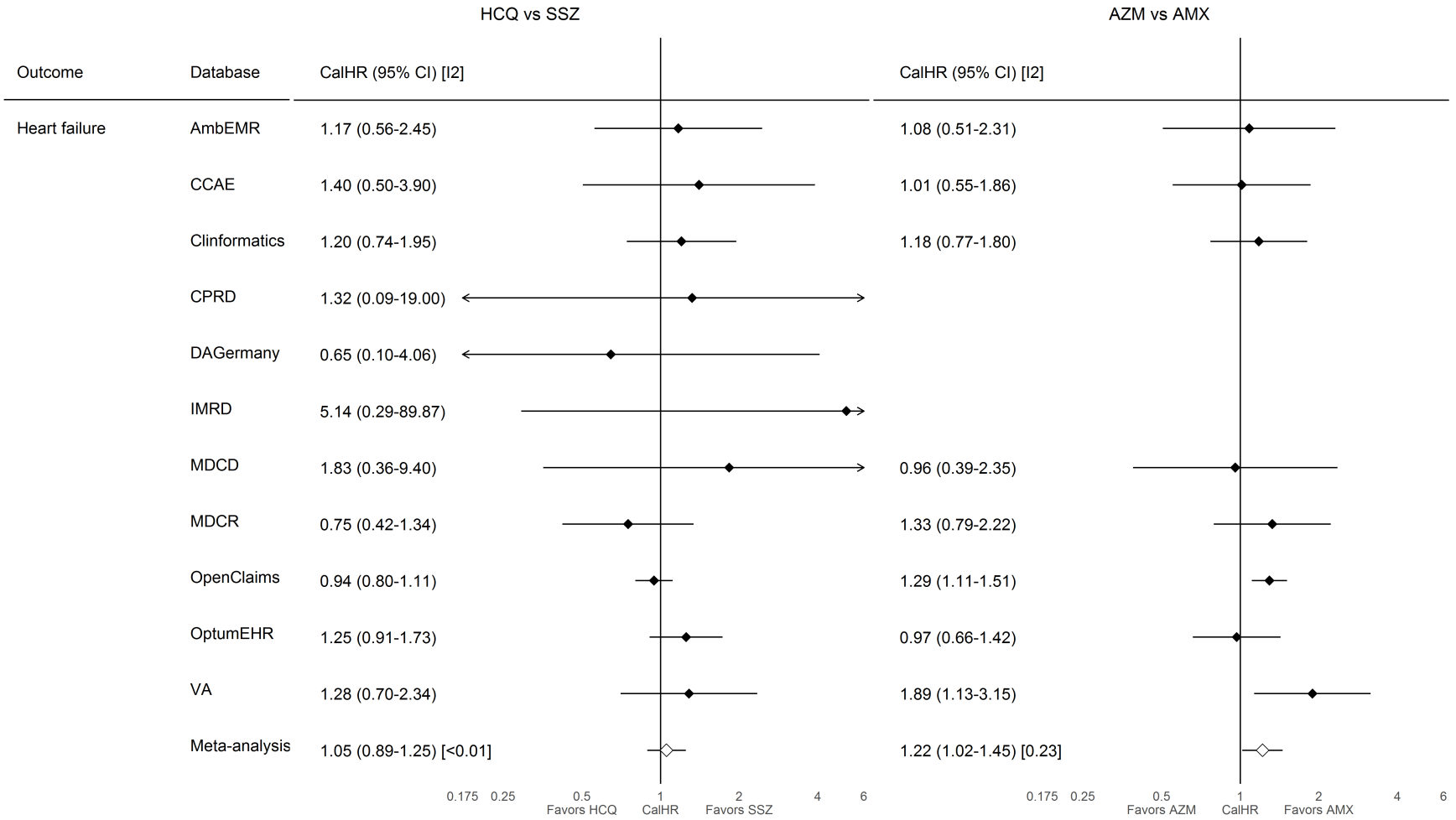
## S8.1.3. Myocardial infarction



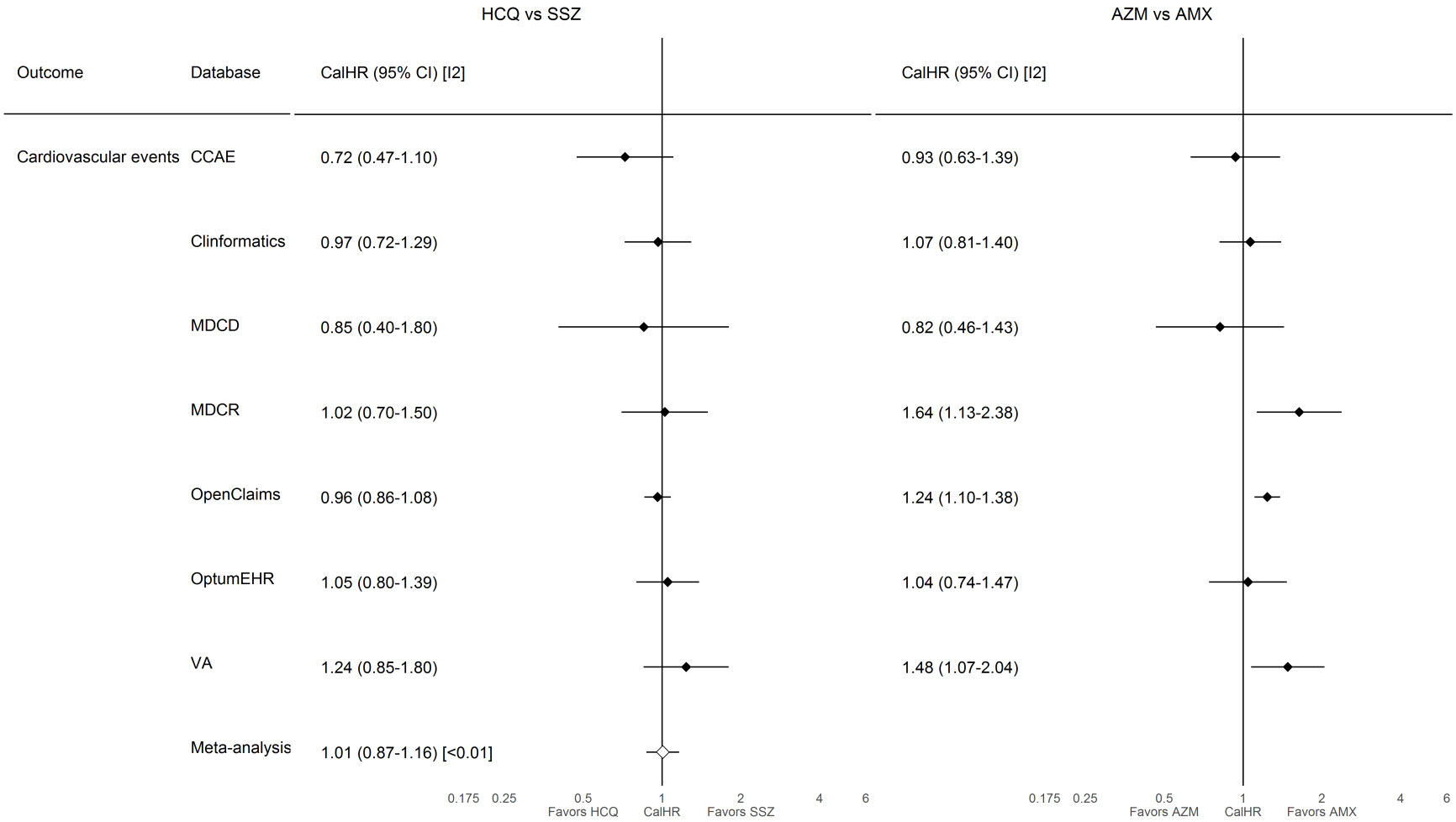
## S8.1.4. Chest pain or angina



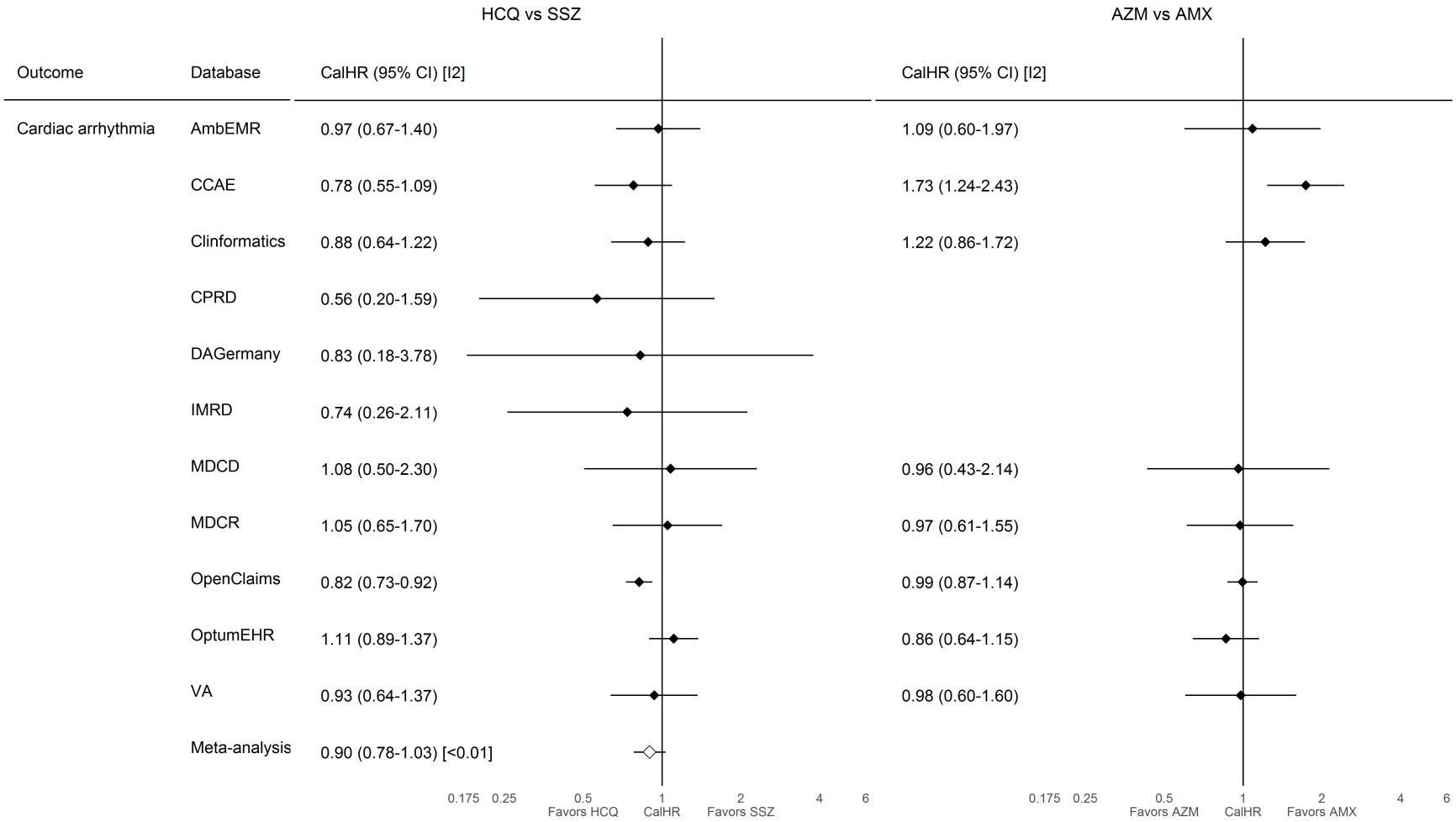
## S8.1.5. Heart failure



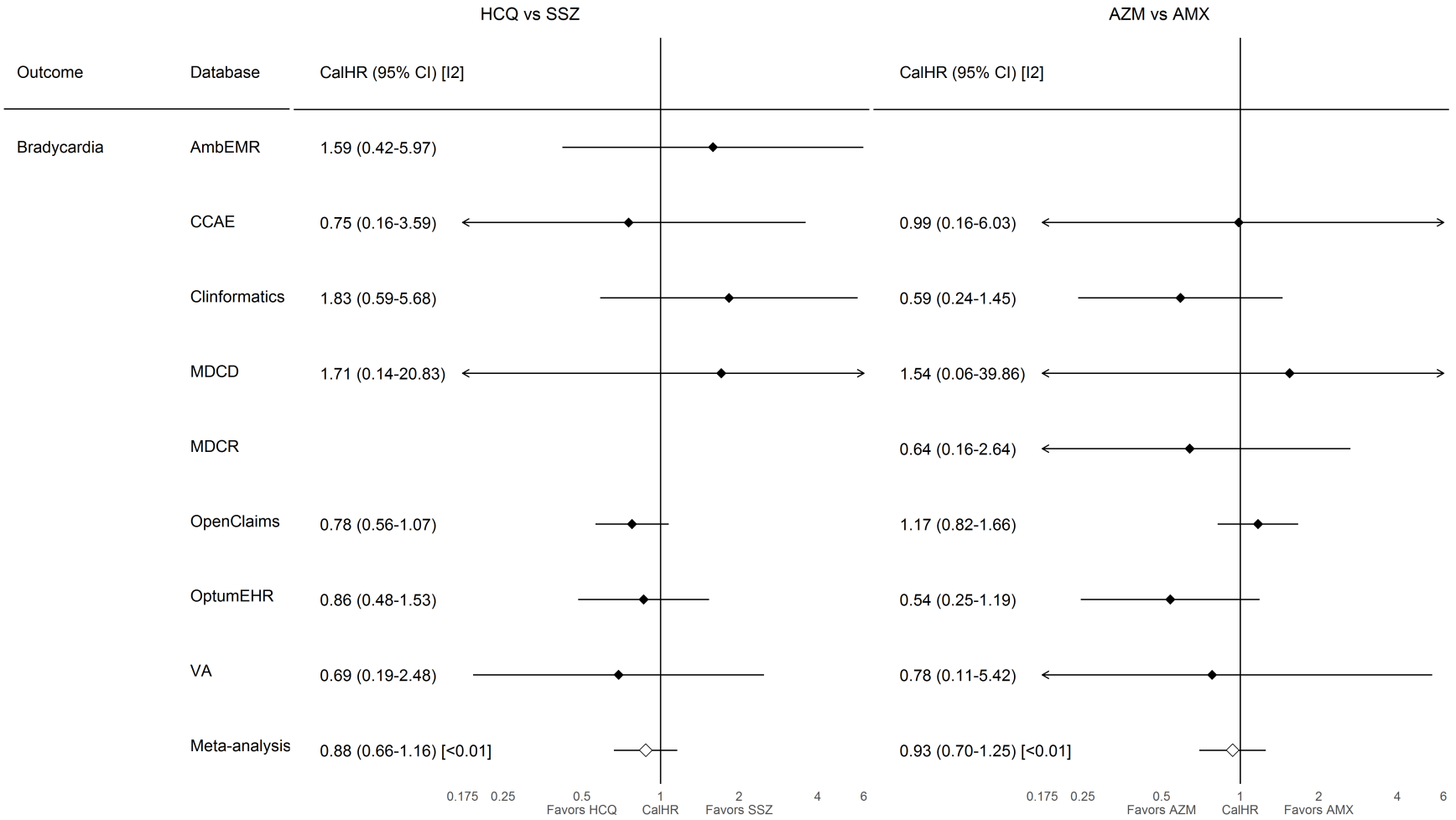
## S8.1.6. Cardiovascular events



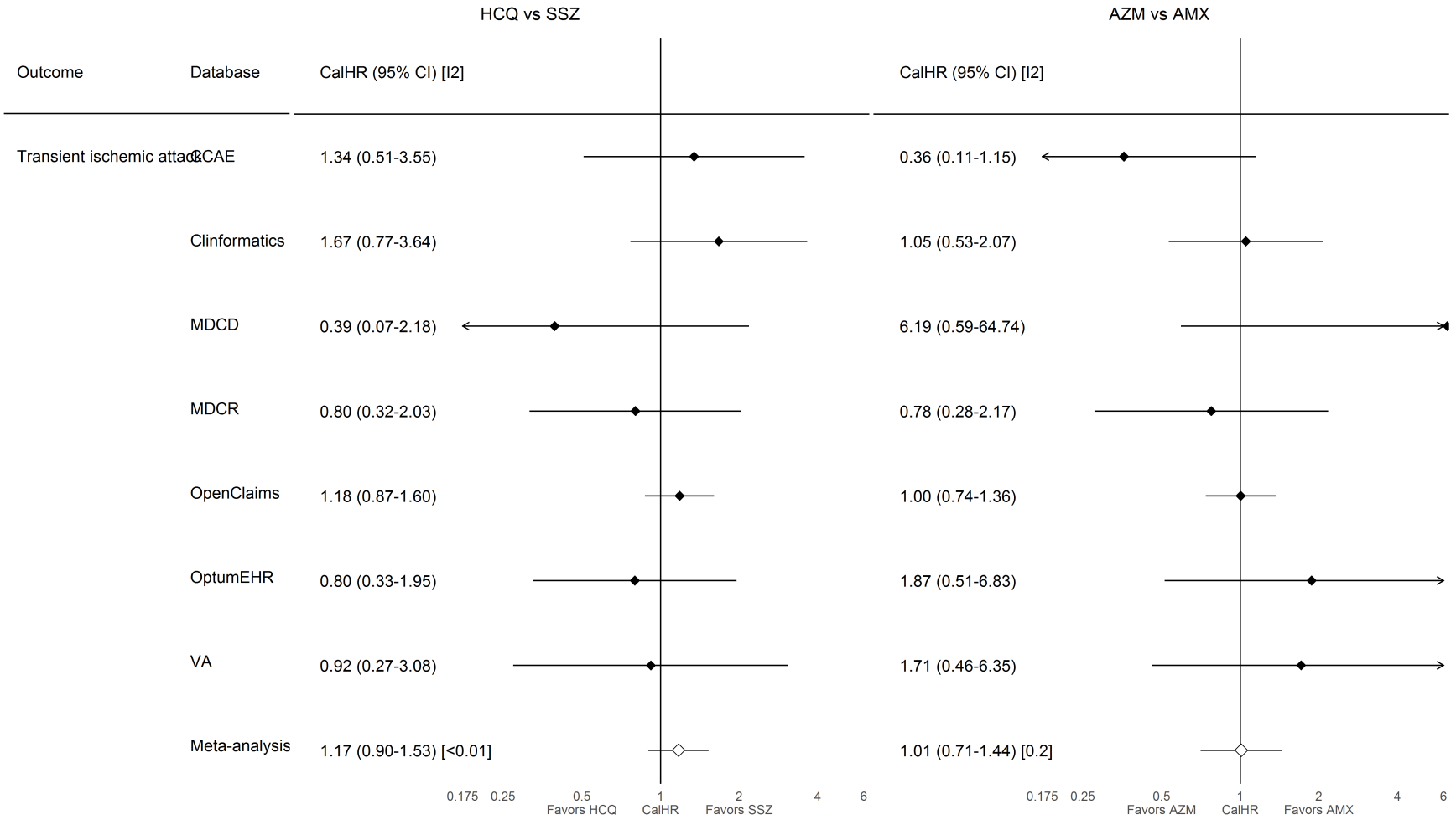
## S8.1.7. Cardiac arrhythmia



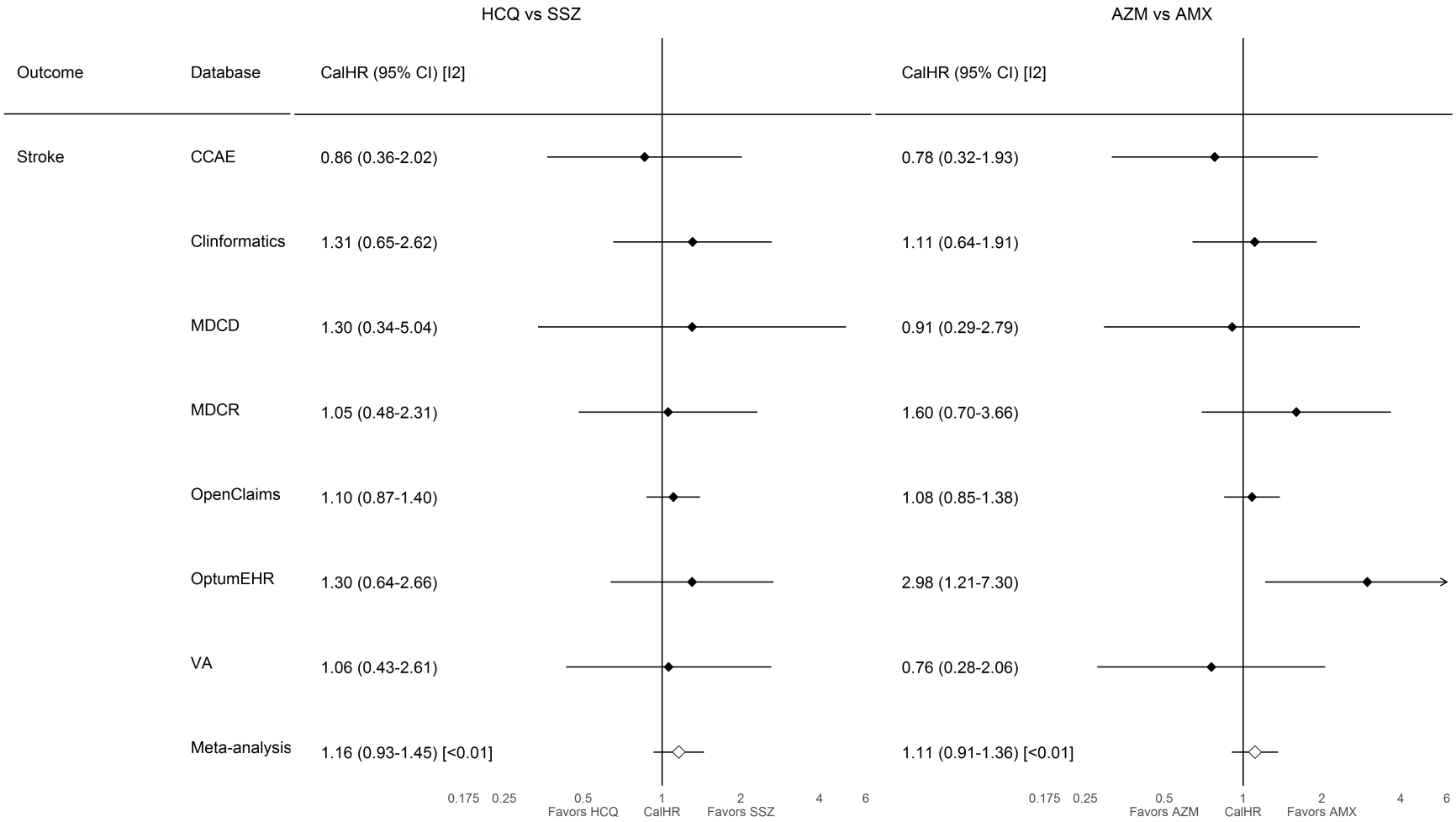
## S8.1.8. Bradycardia



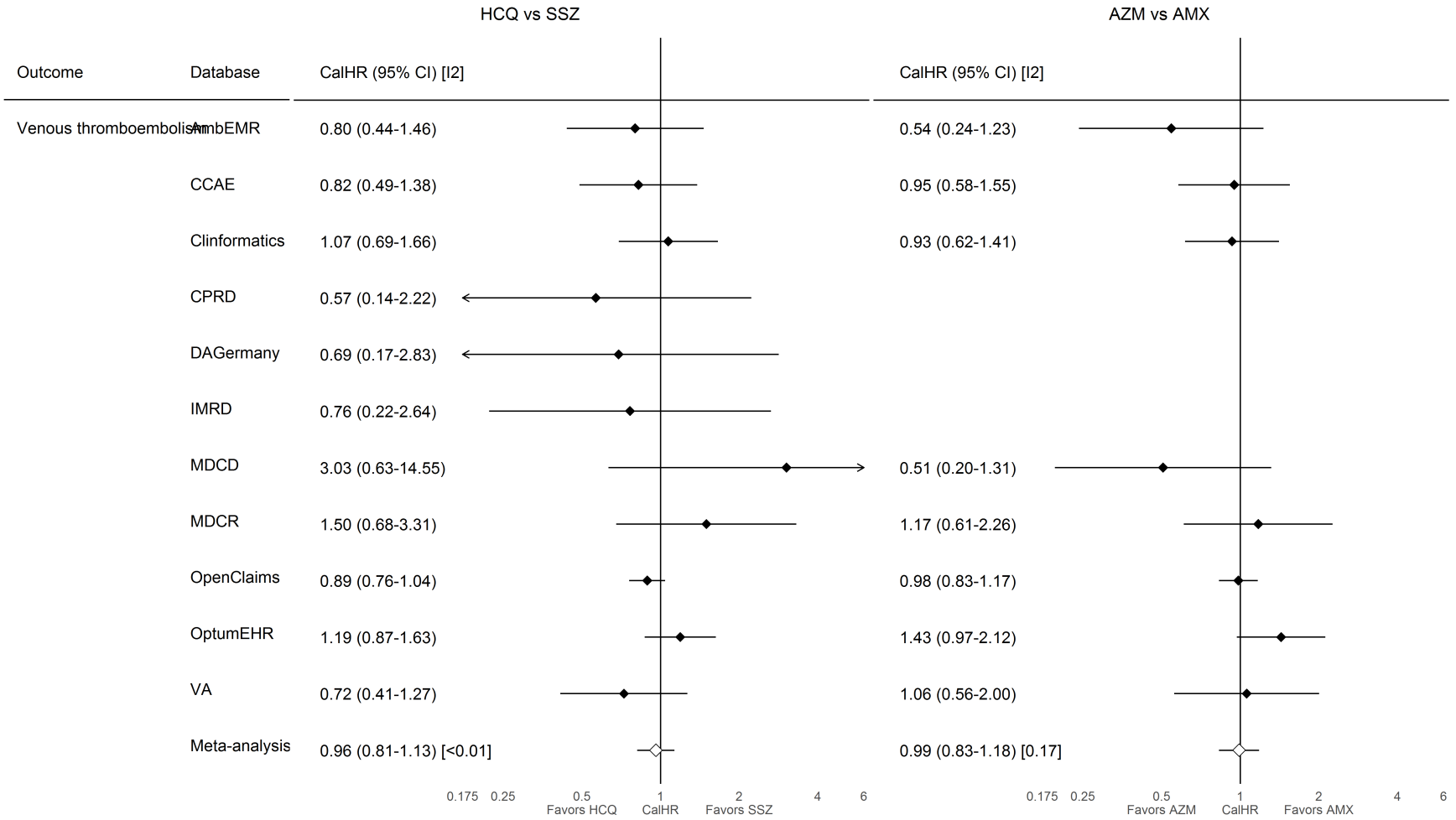
## S8.1.9. Transient ischemic attack



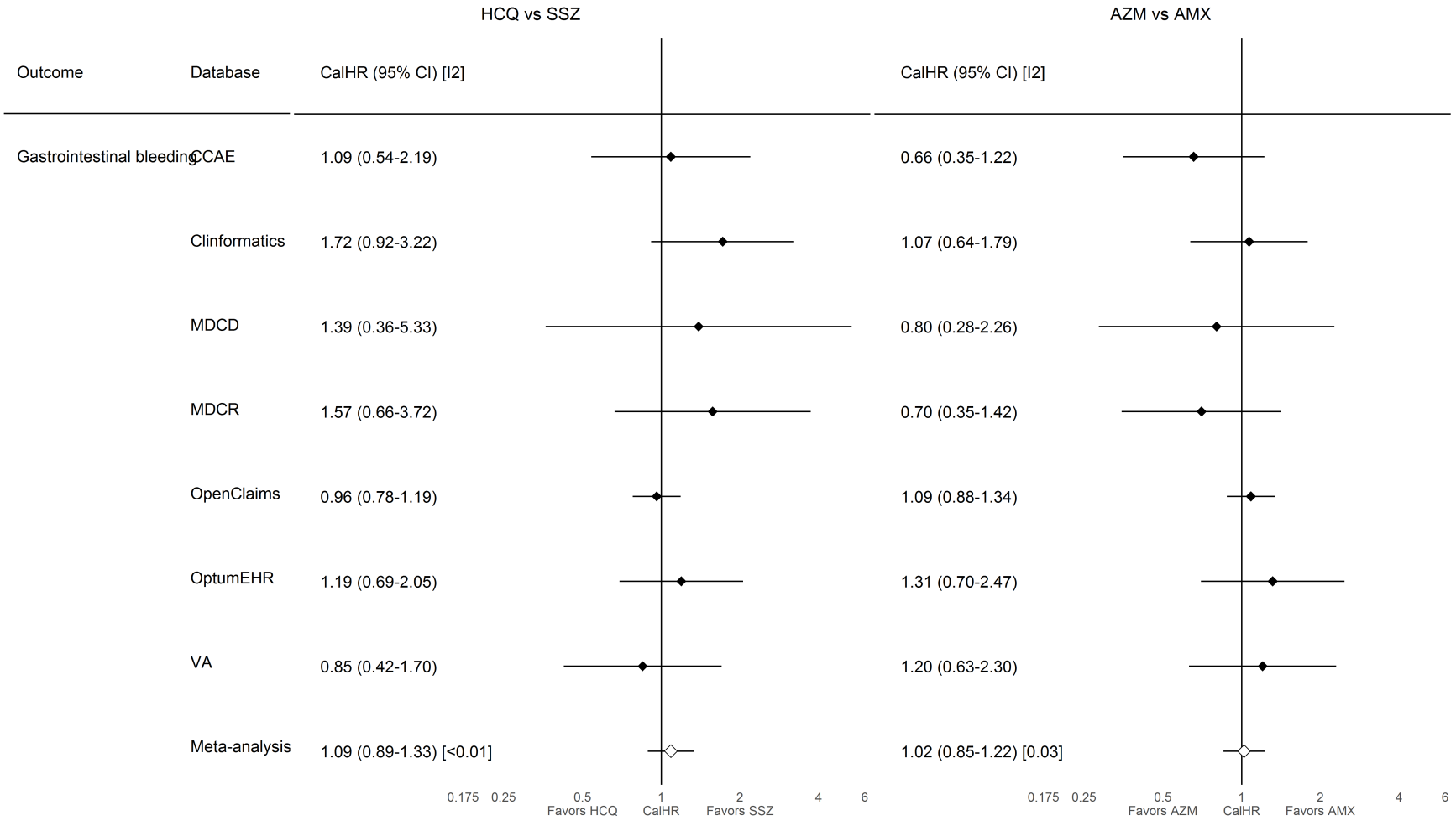
## S8.1.10. Stroke



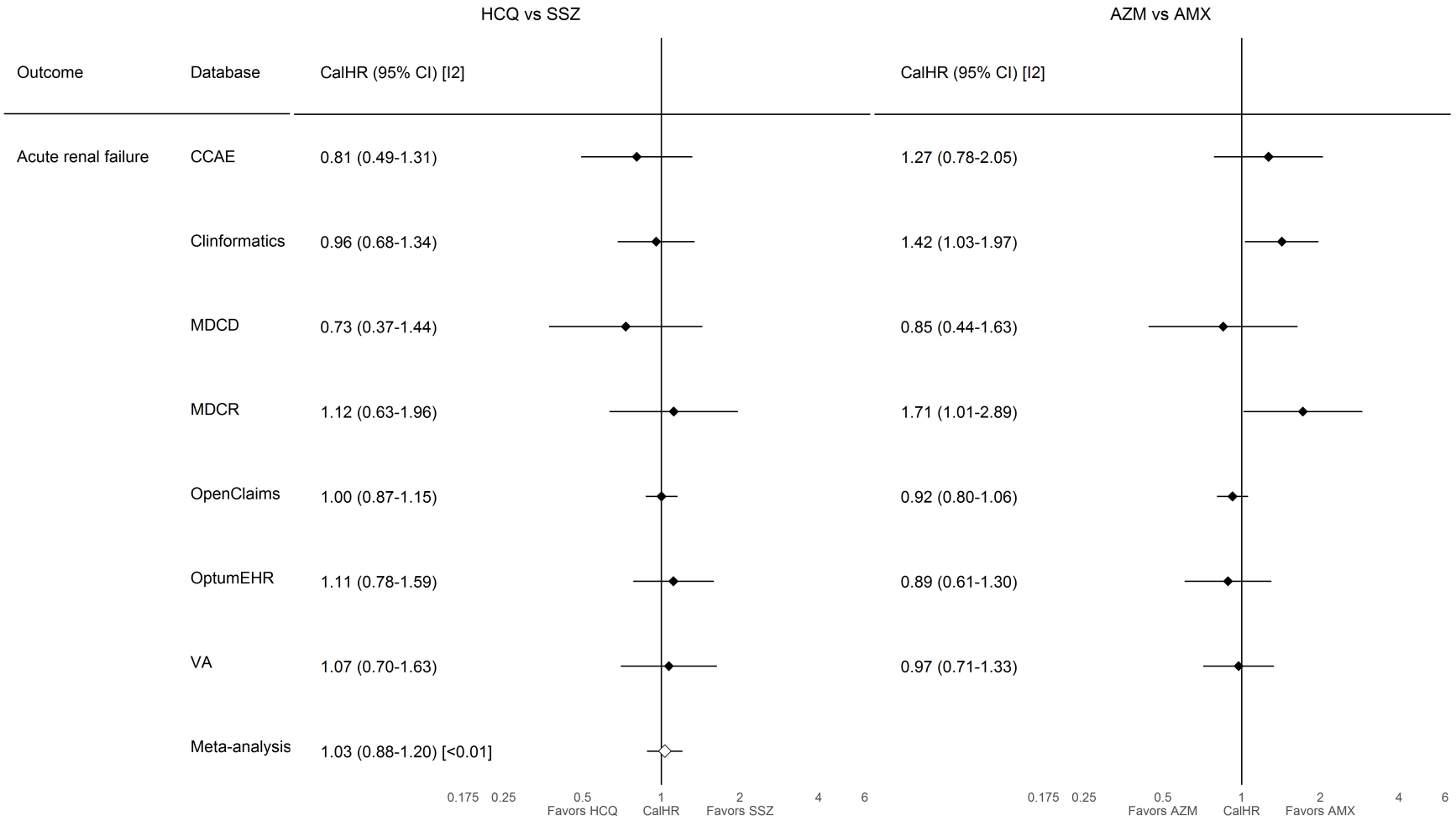
## S8.1.11. Venous thromboembolism



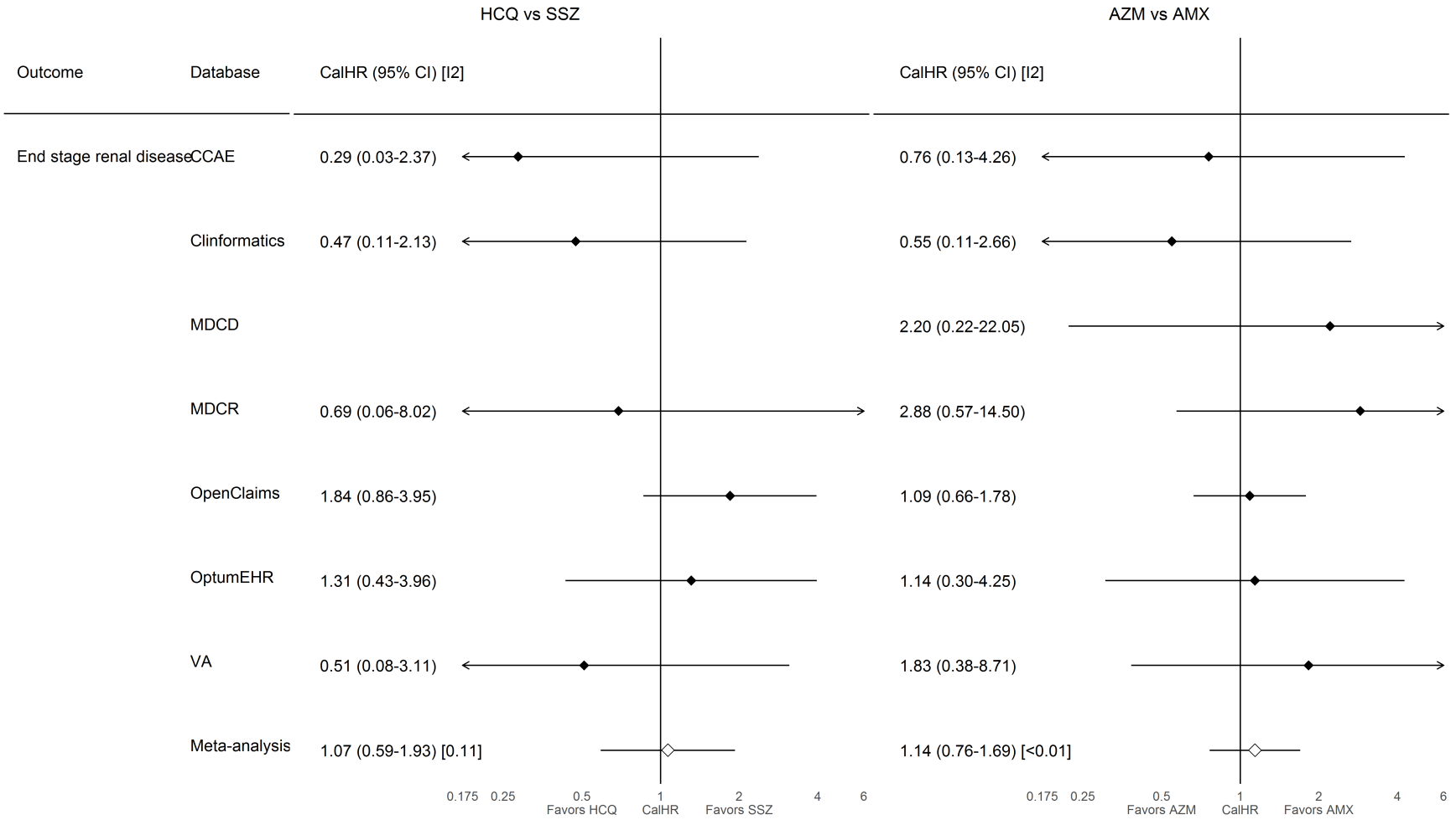
## S8.1.12. Gastrointestinal bleeding



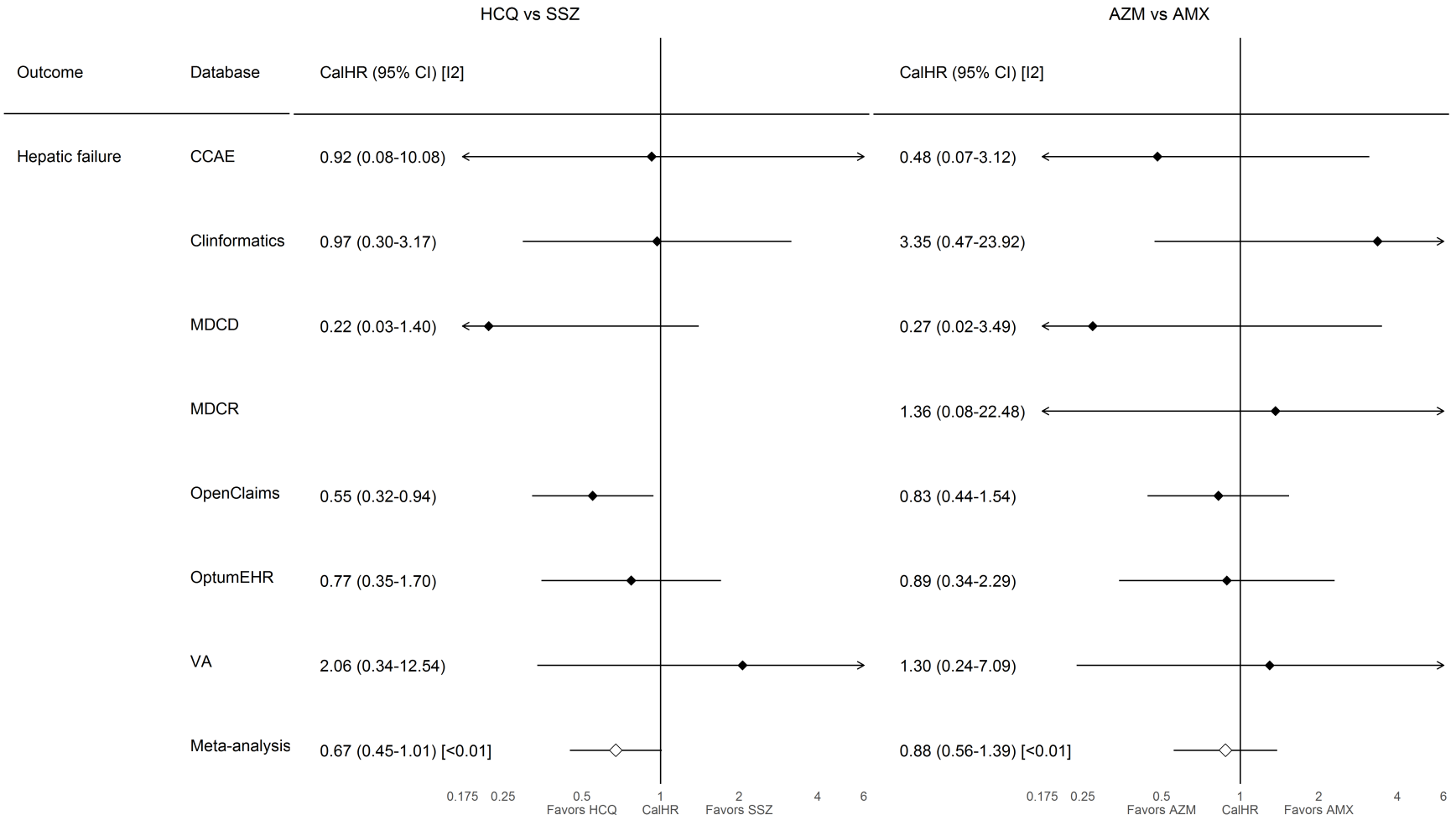
## S8.1.13. Acute renal failure



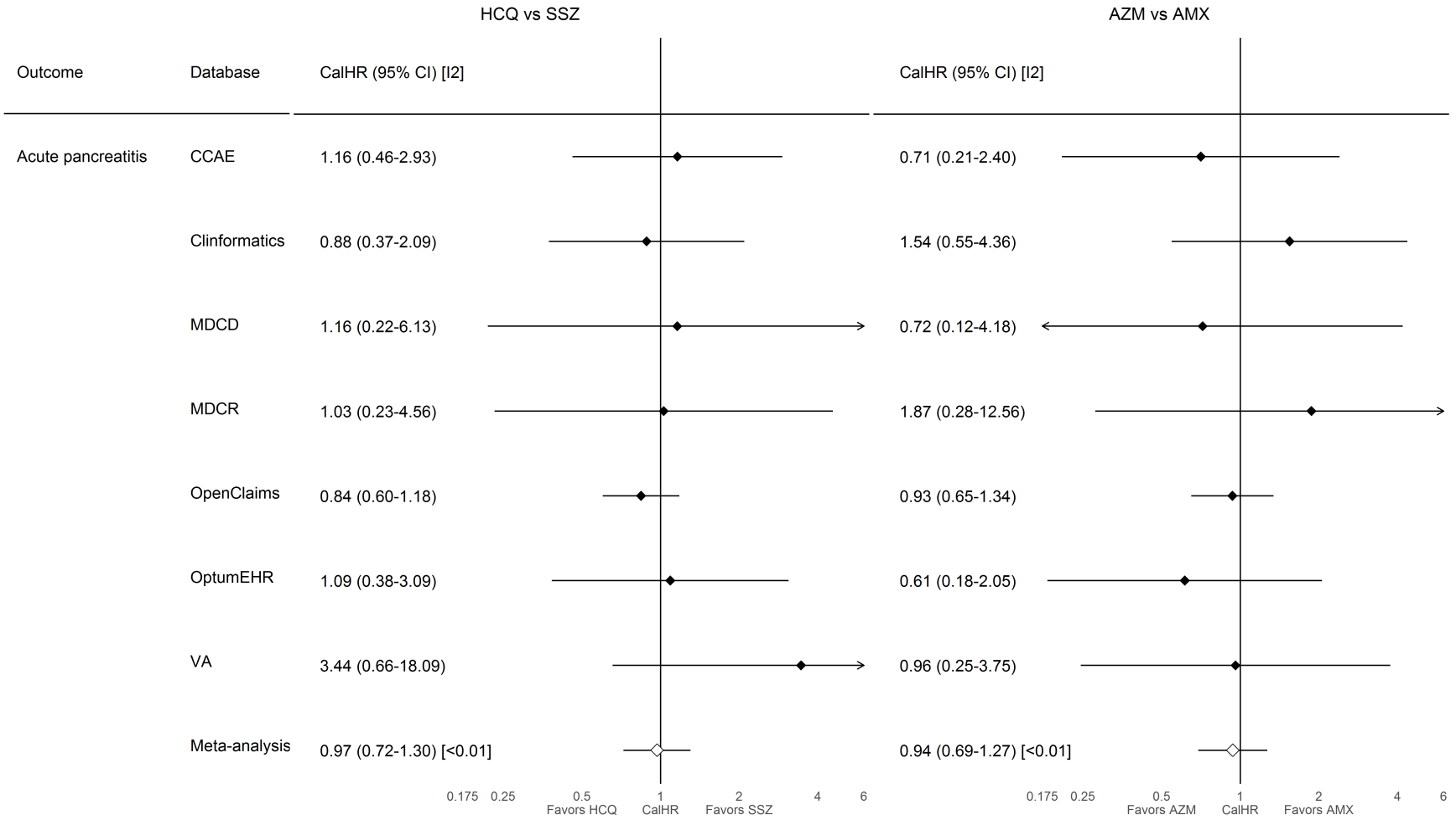
## S8.1.14. End stage renal disease



## S8.1.15. Hepatic failure

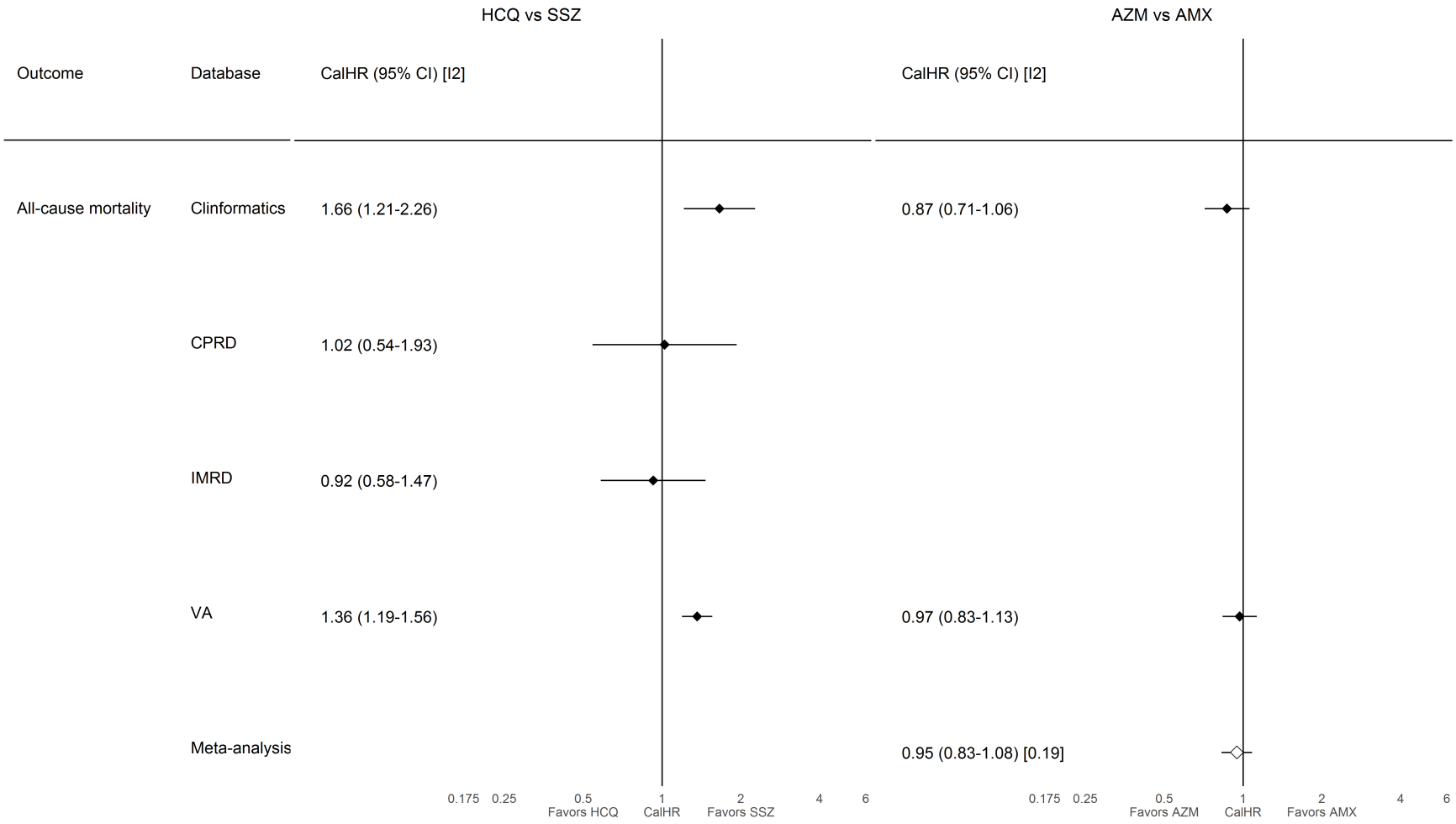


## S8.1.16. Acute pancreatitis

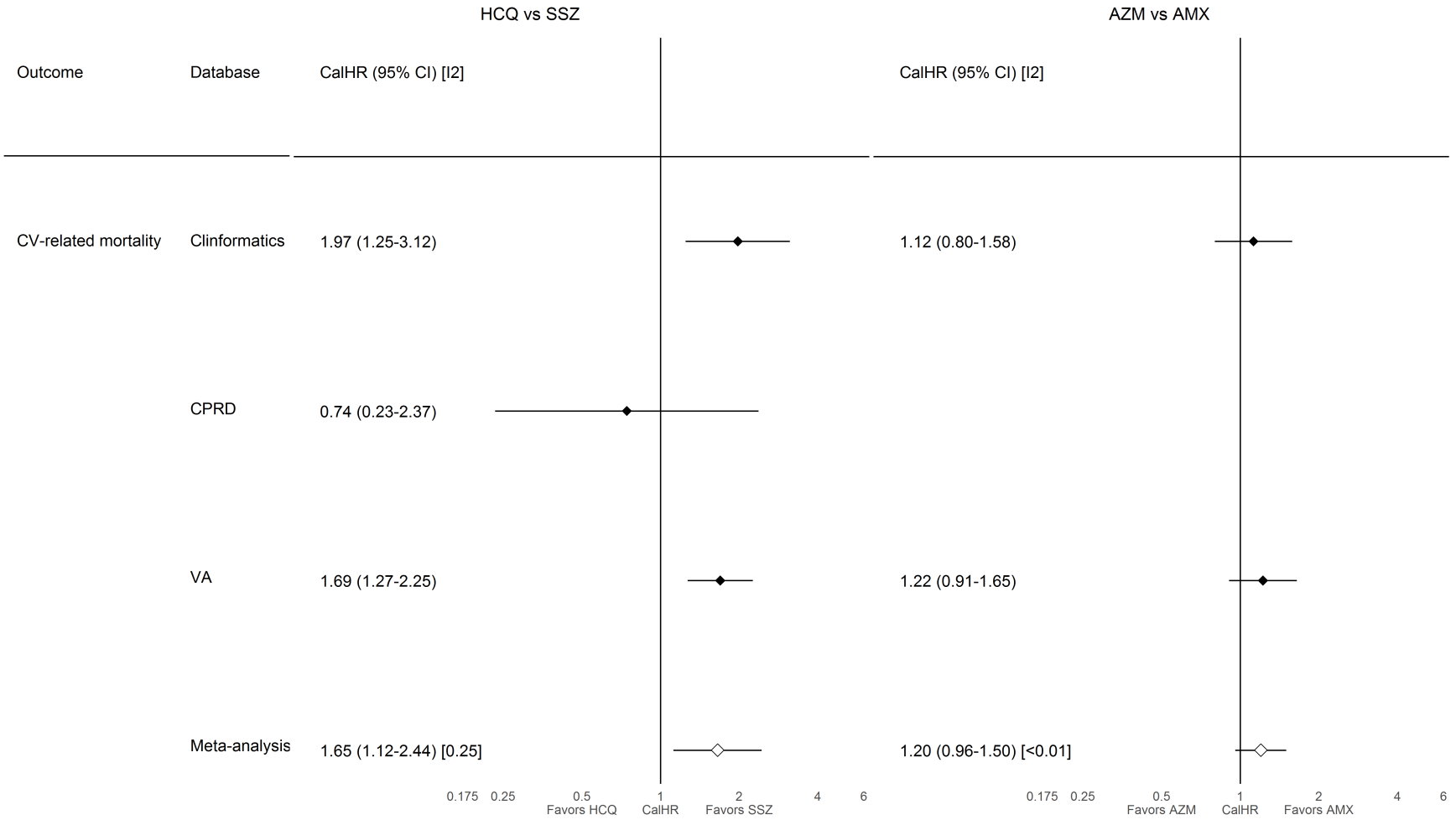


## S8.2. On-treatment follow-up

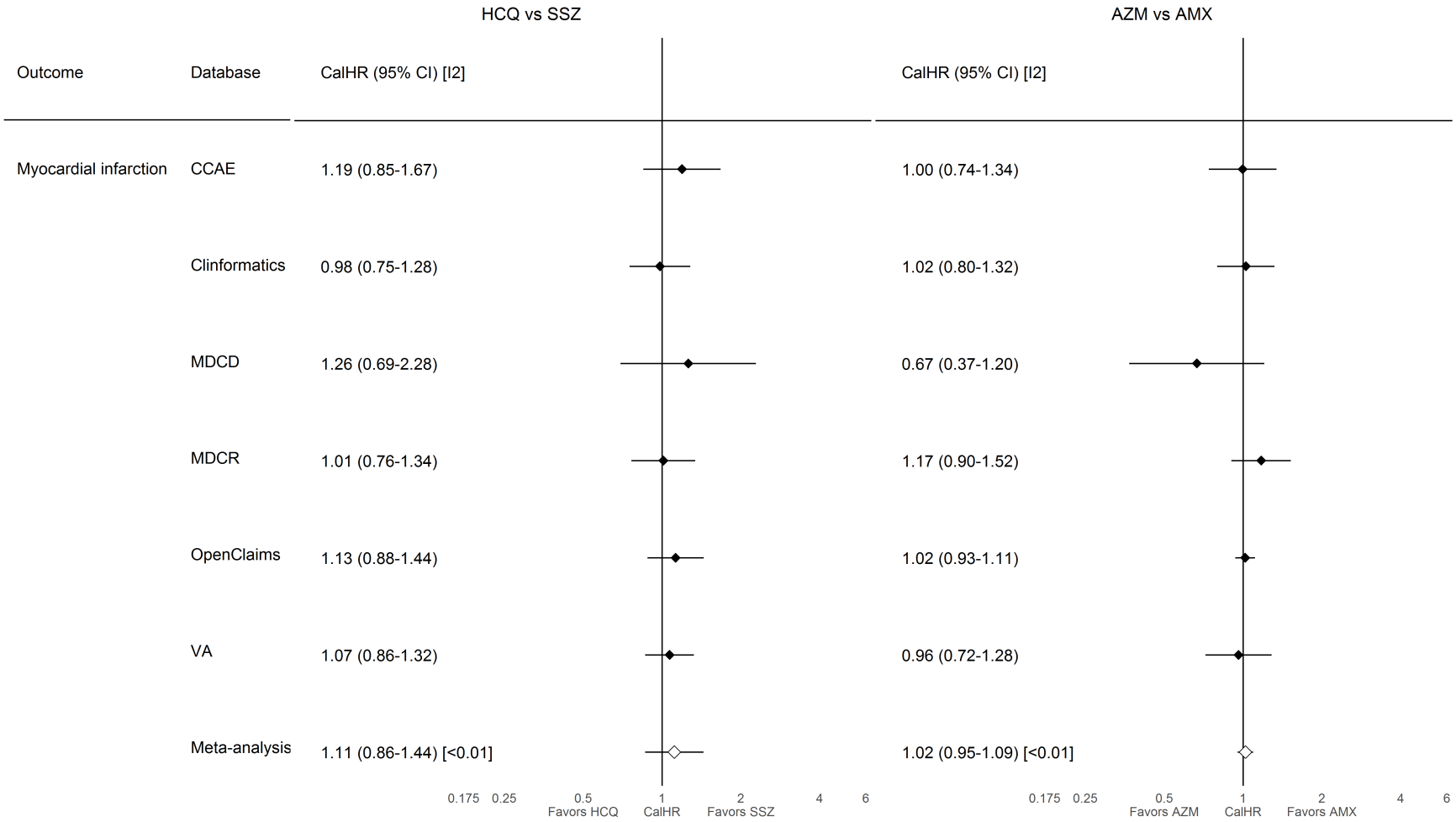
### S8.2.1. All-cause mortality



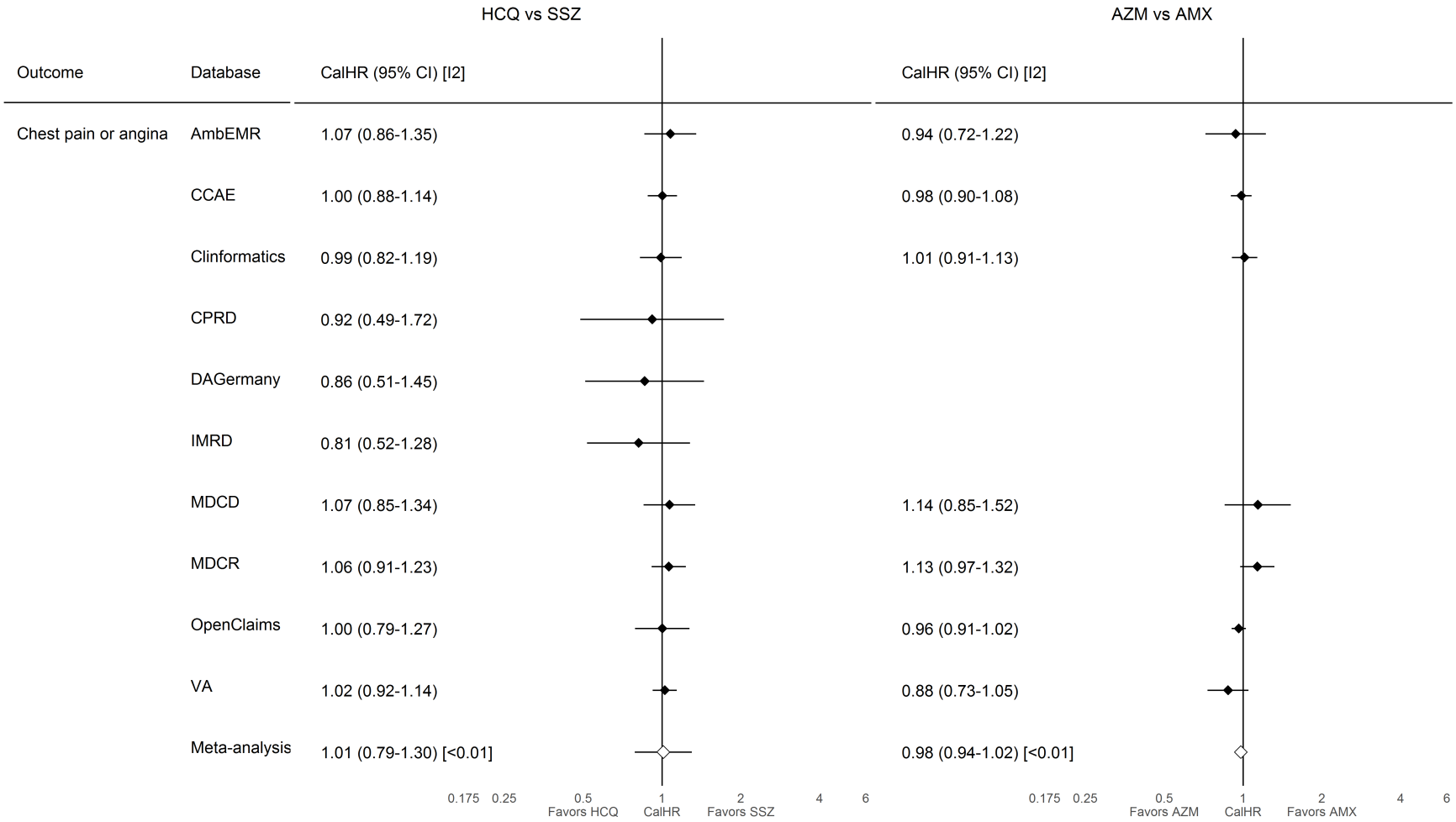
## S8.2.2. CV-related mortality



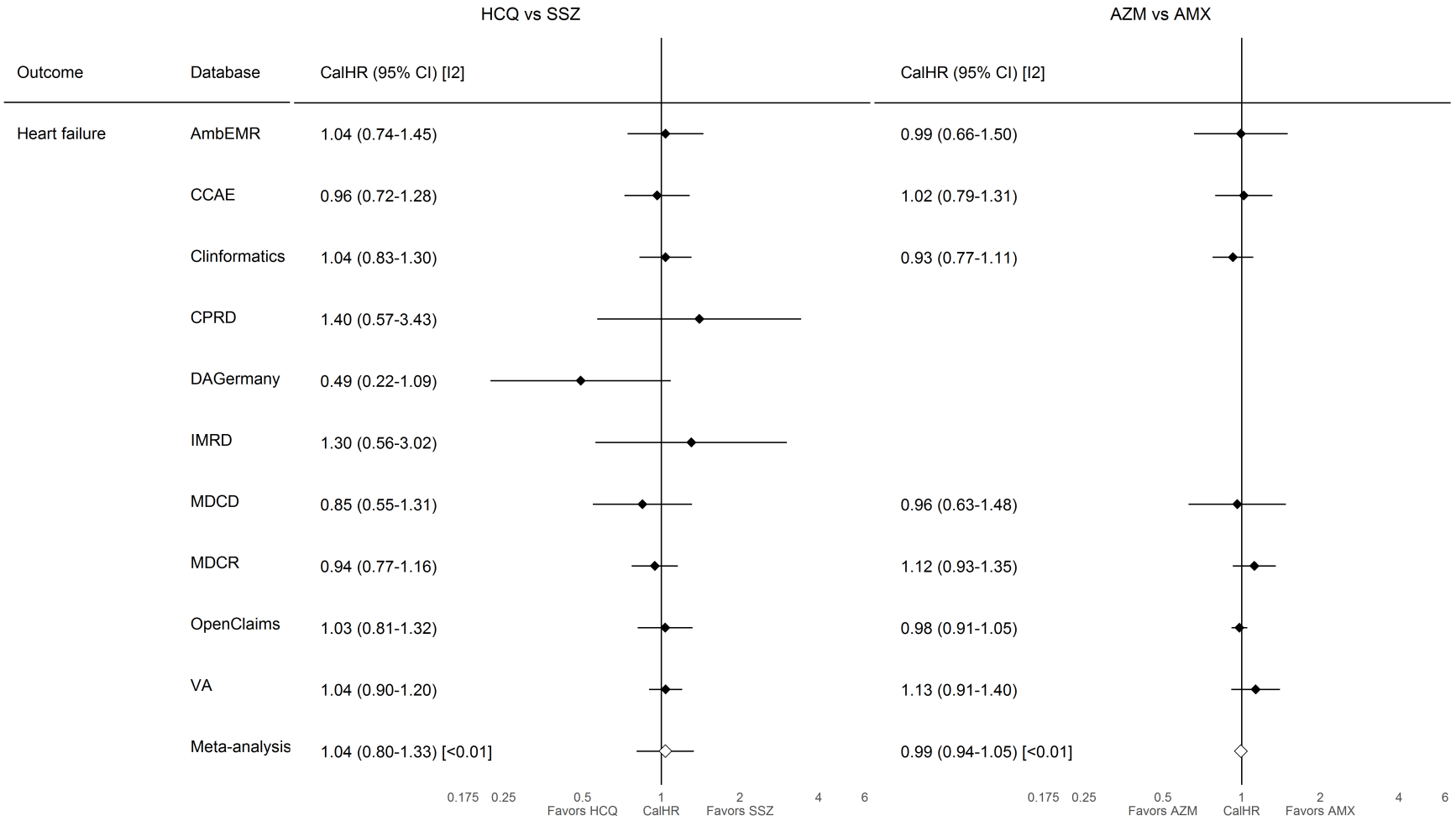
## S8.2.3. Myocardial infarction



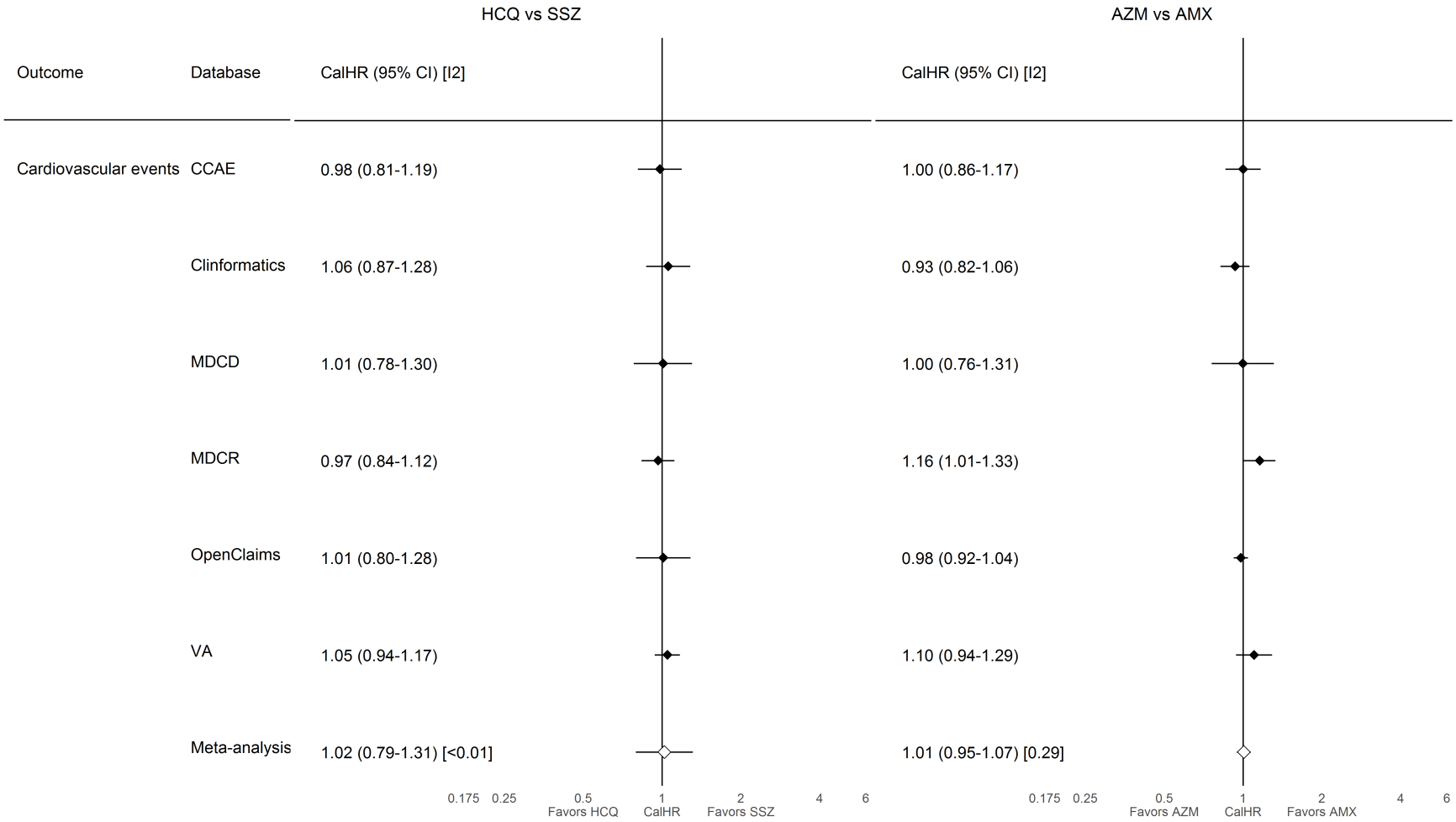
## S8.2.4. Chest pain or angina



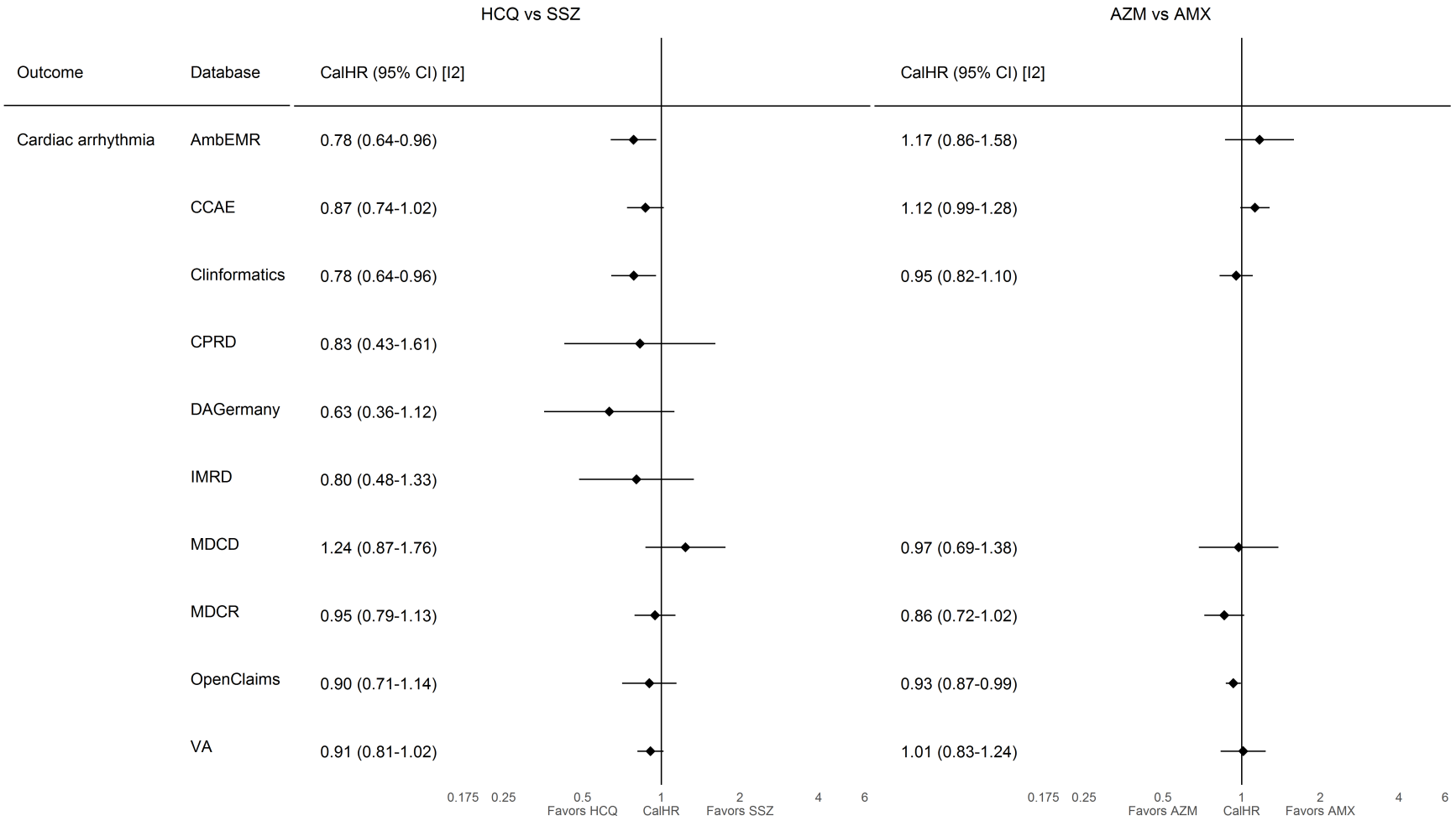
## S8.2.5. Heart failure



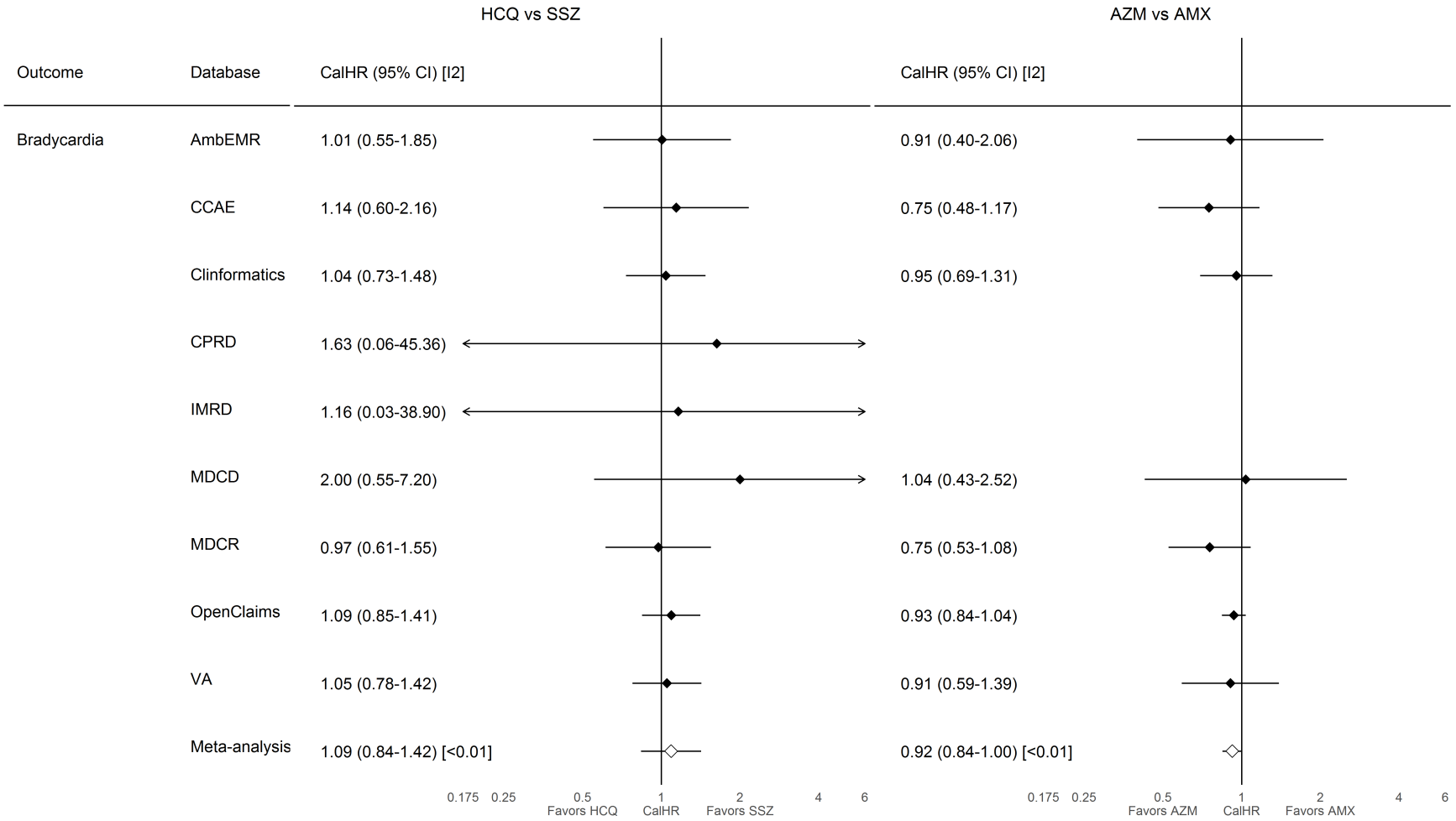
## S8.2.6. Cardiovascular events



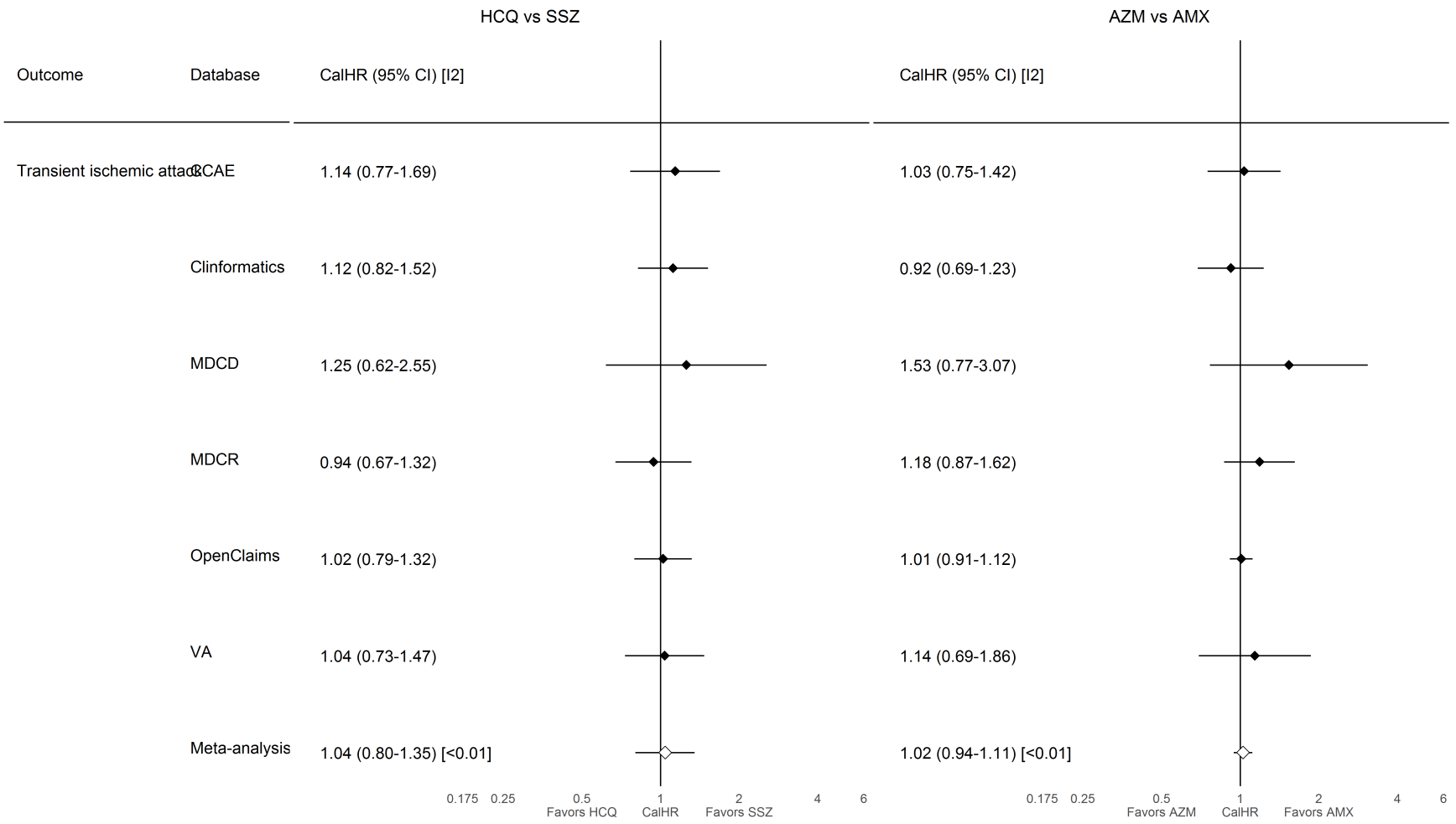
## S8.2.7. Cardiac arrhythmia



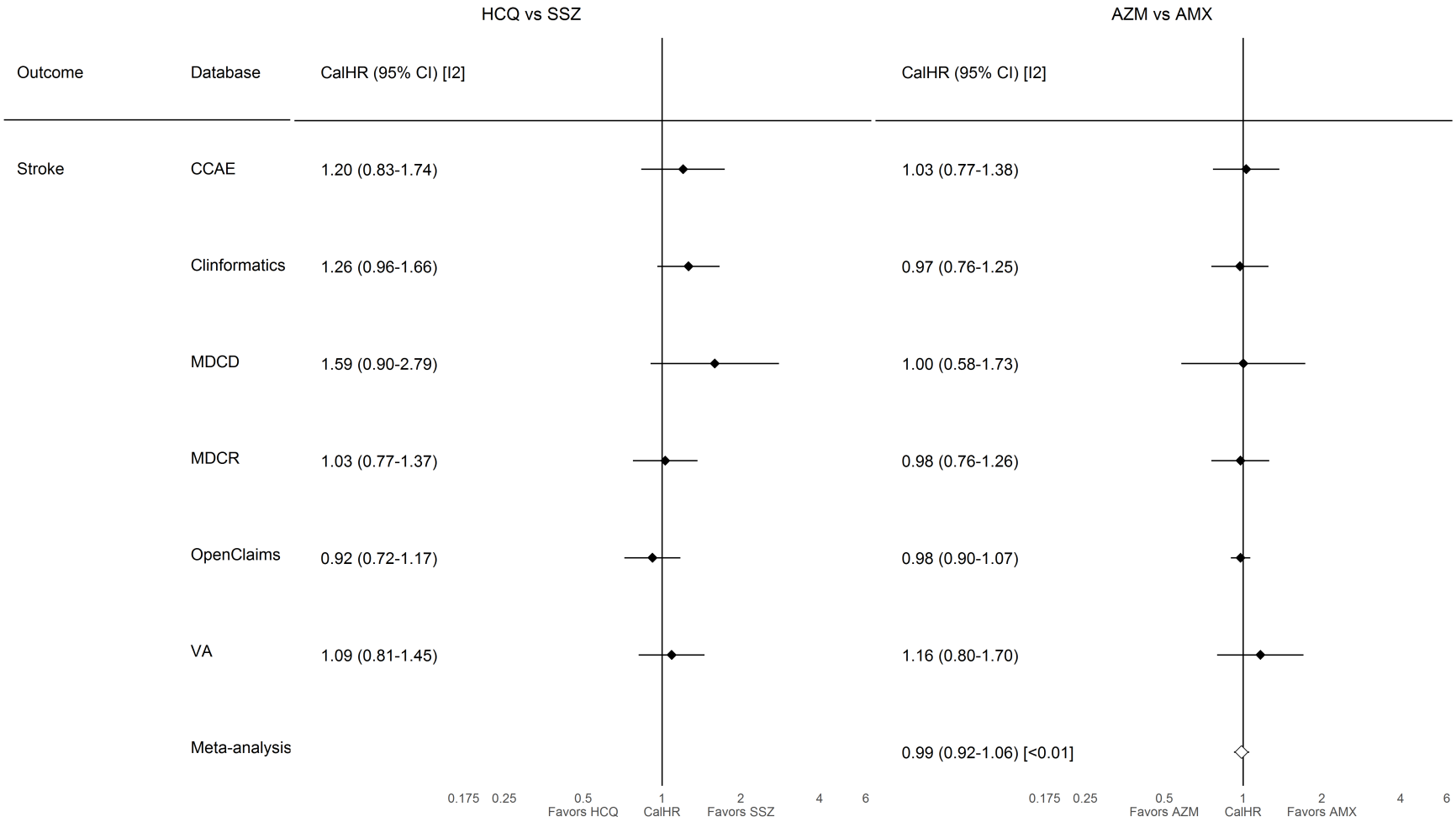
## S8.2.8. Bradycardia



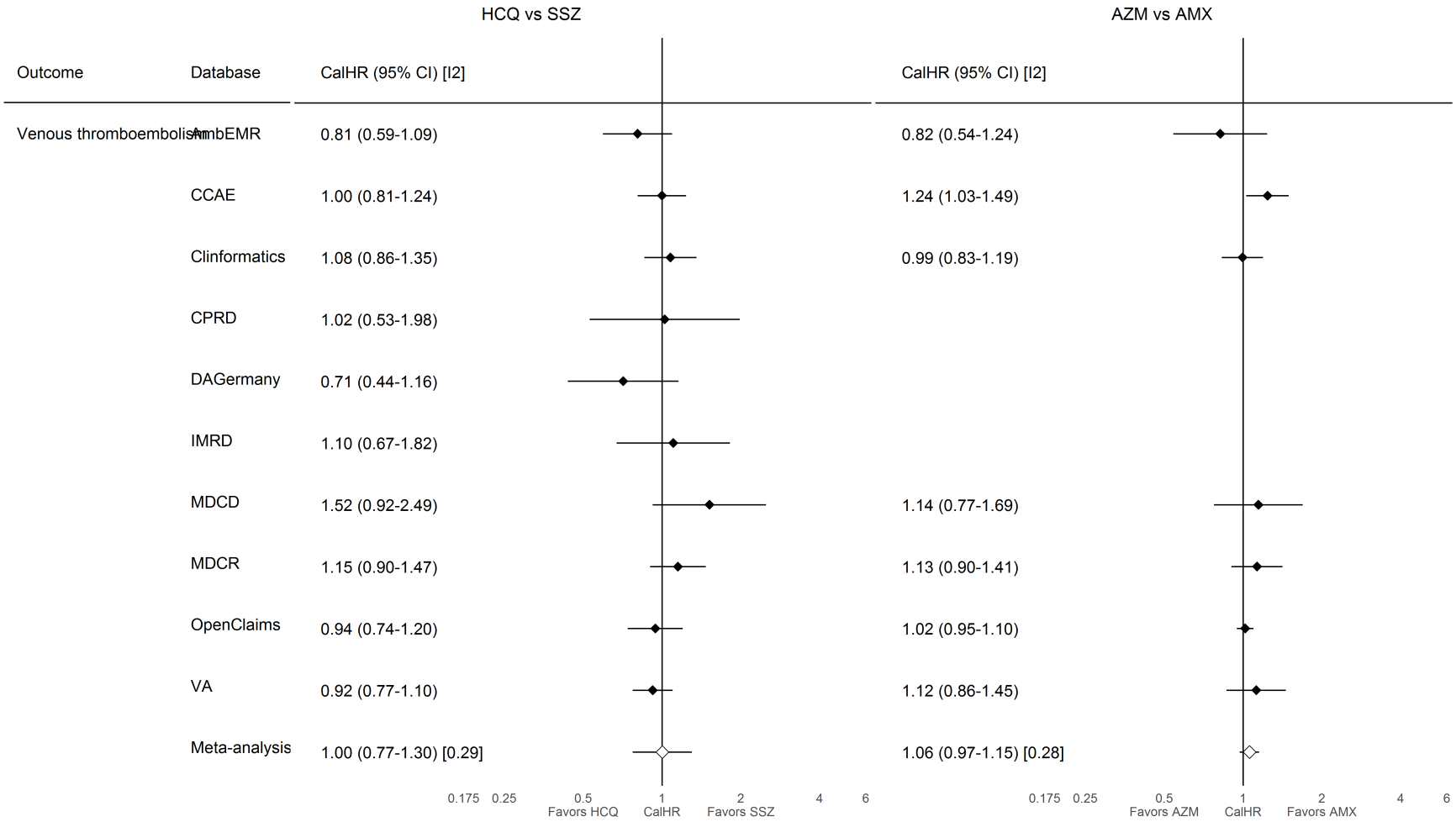
## S8.2.9. Transient ischemic attack



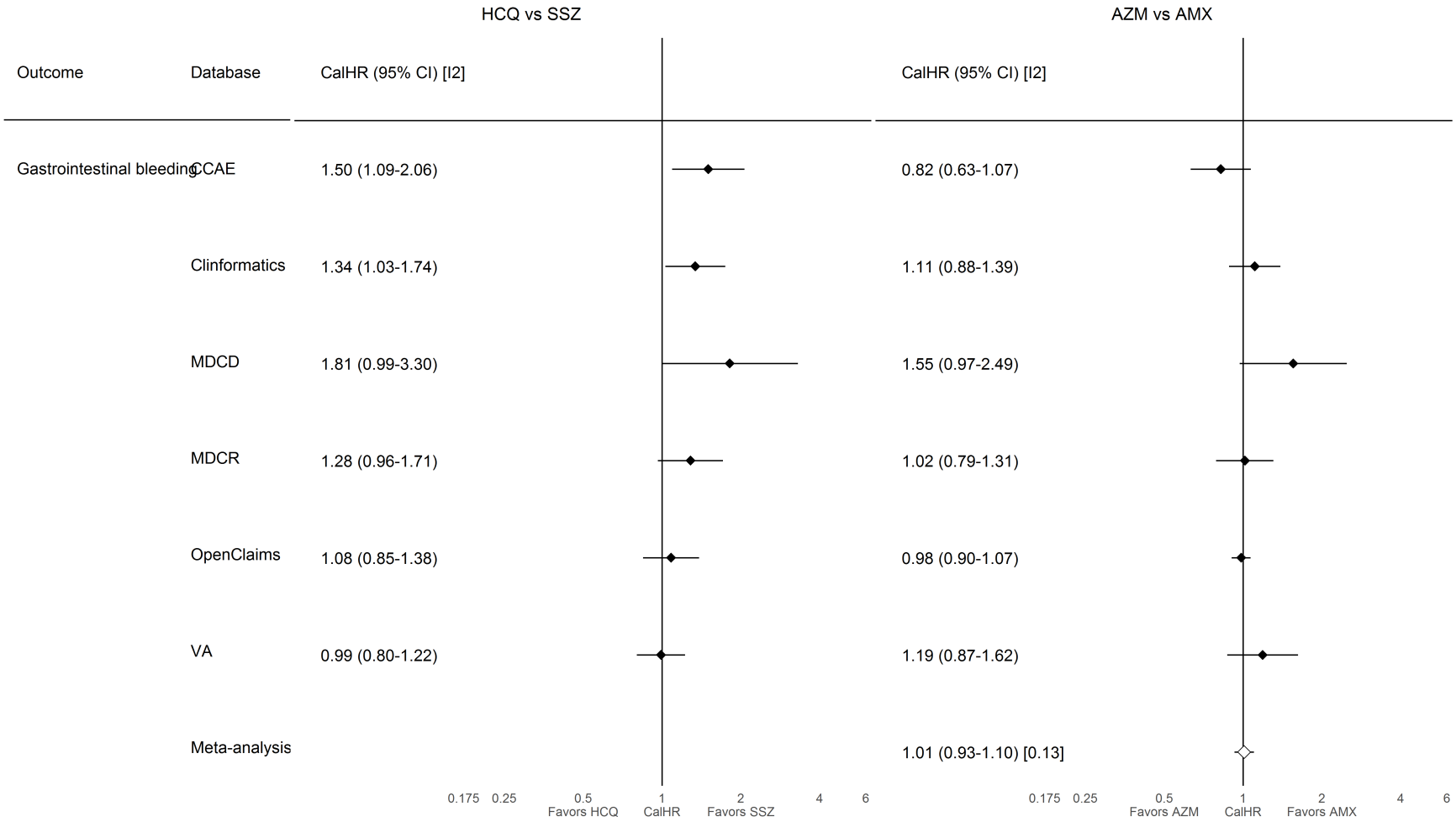
## S8.2.10. Stroke



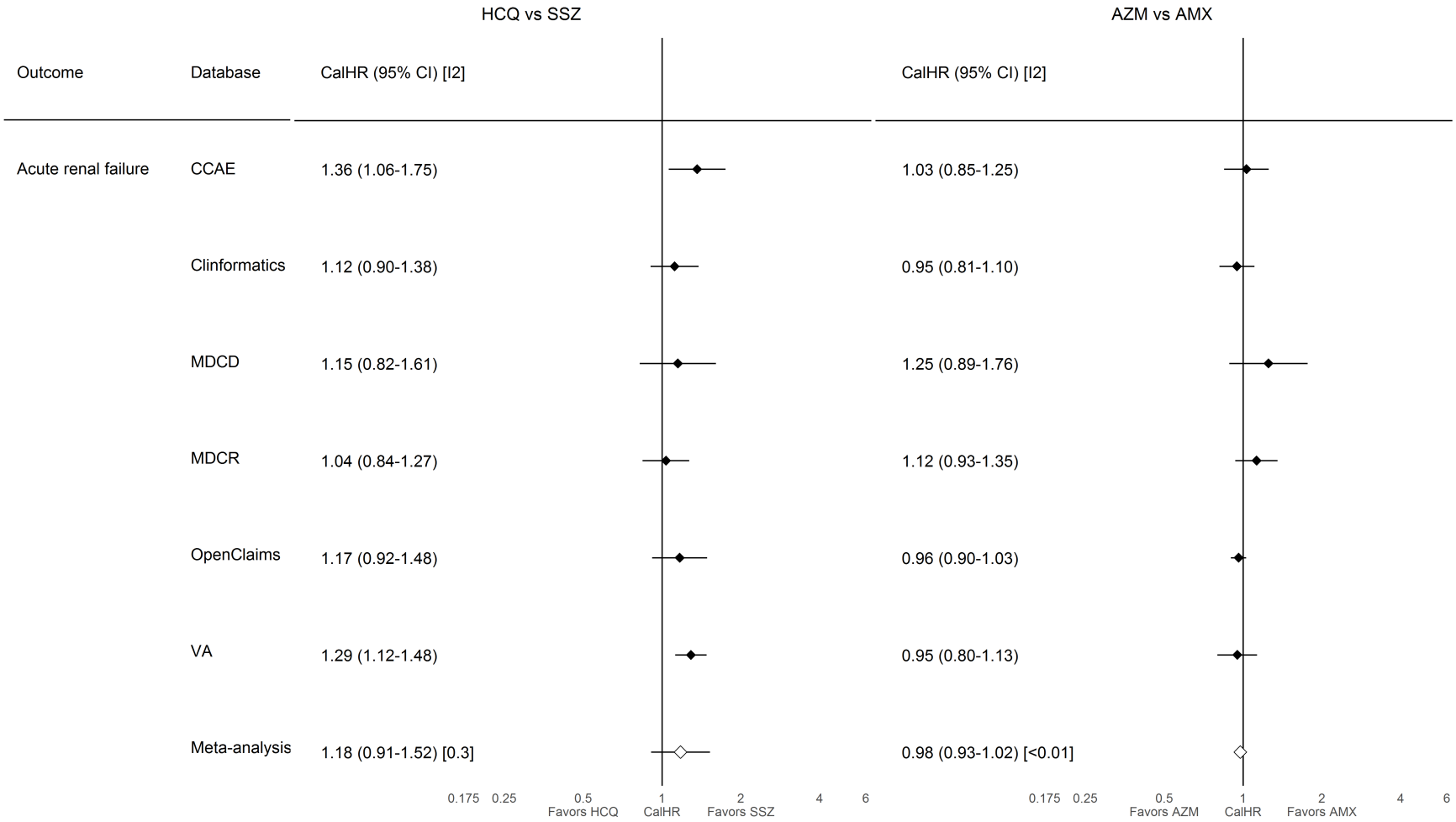
## S8.2.11. Venous thromboembolism



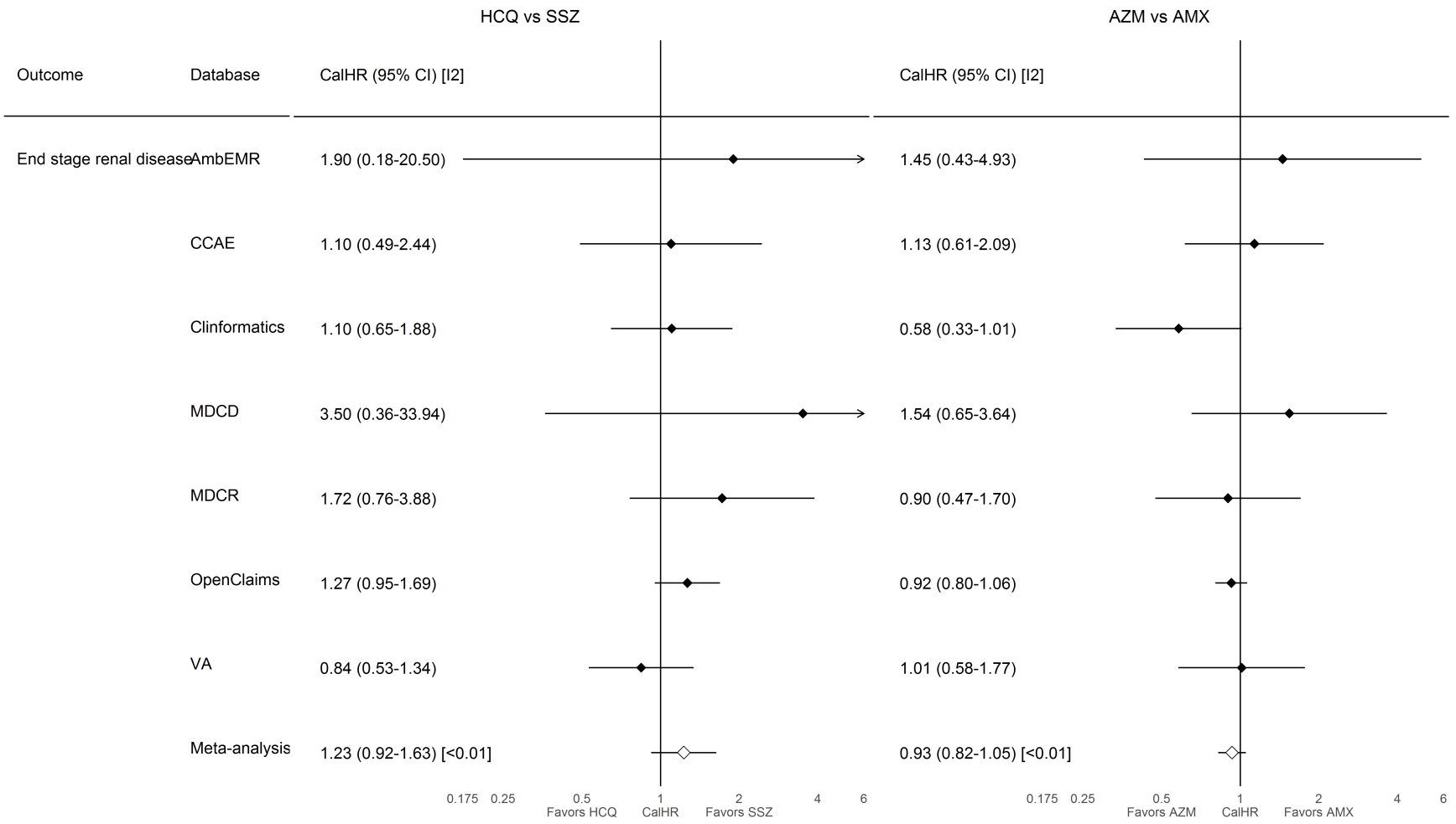
## S8.2.12. Gastrointestinal bleeding



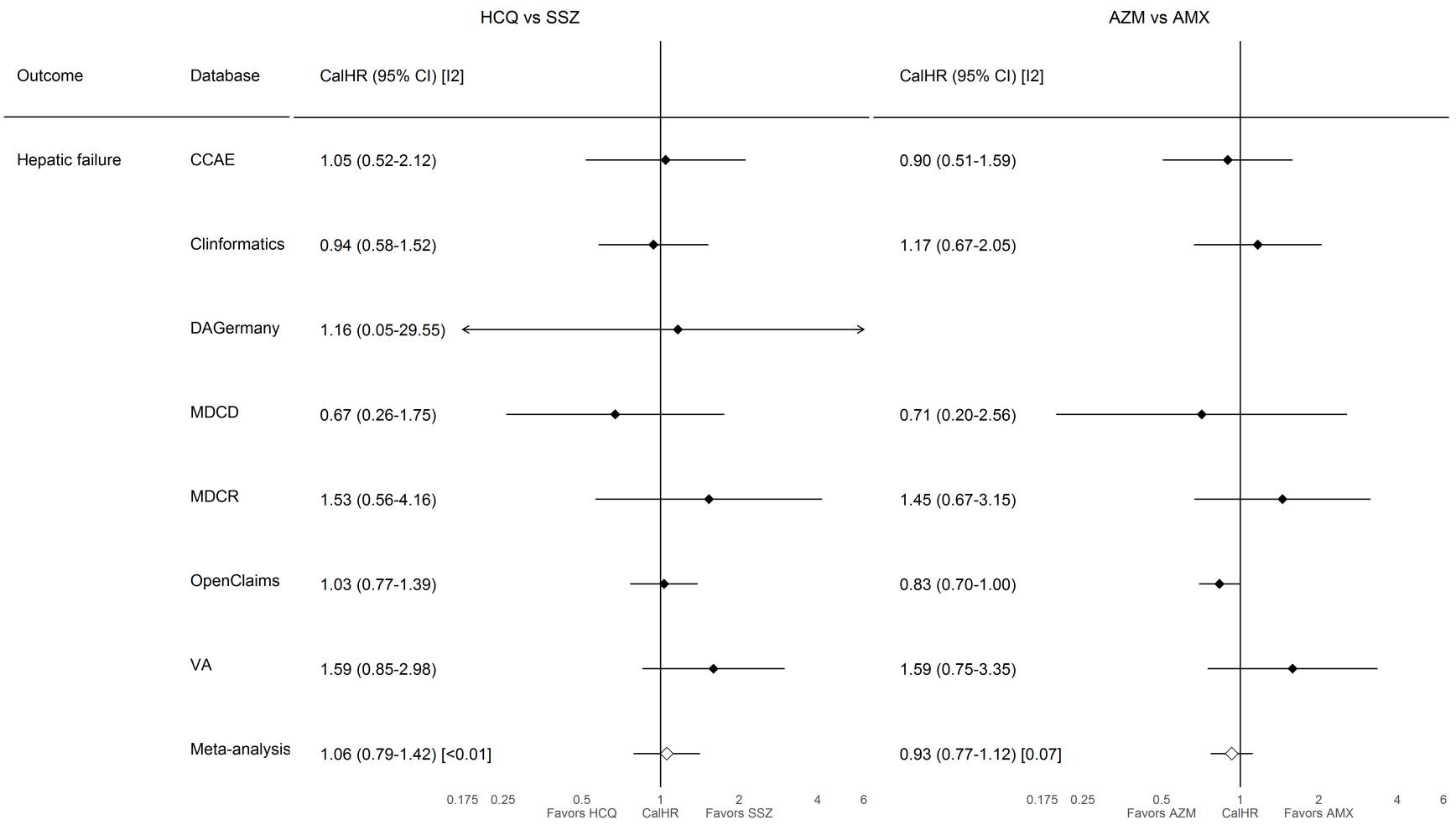
## S8.2.13. Acute renal failure



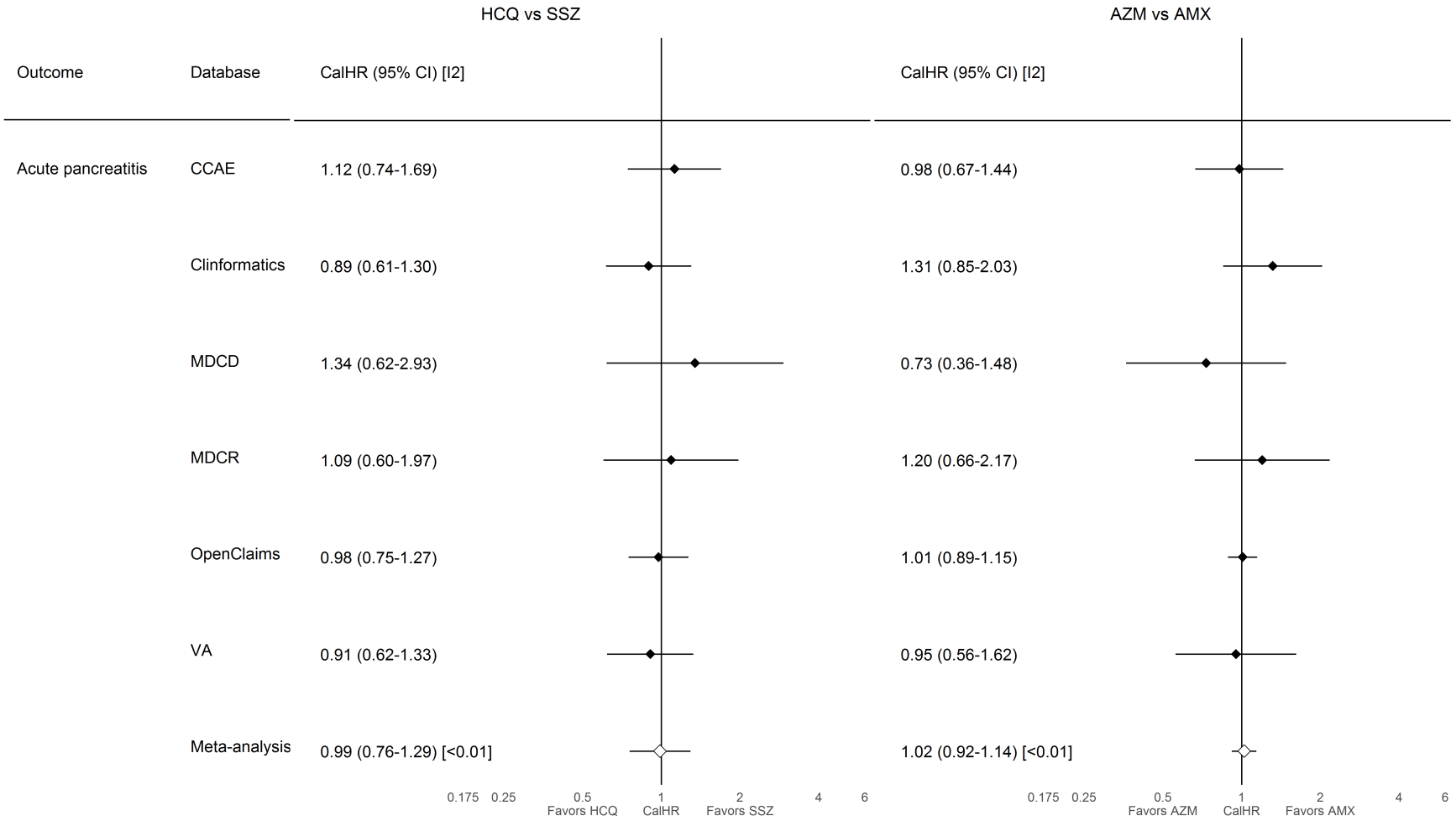
## S8.2.14. End stage renal disease



## S8.2.15. Hepatic failure



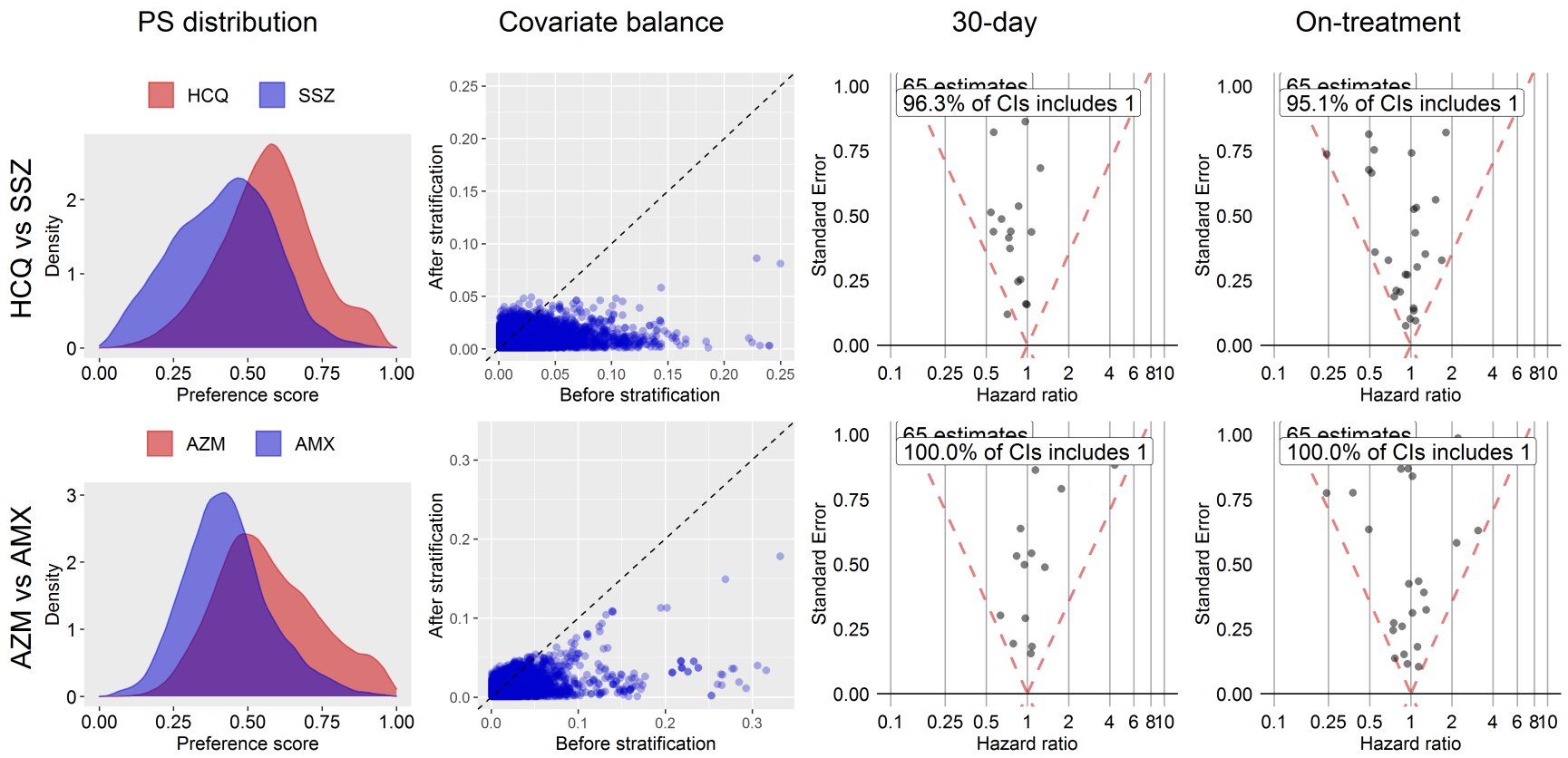
## S8.2.16. Acute pancreatitis



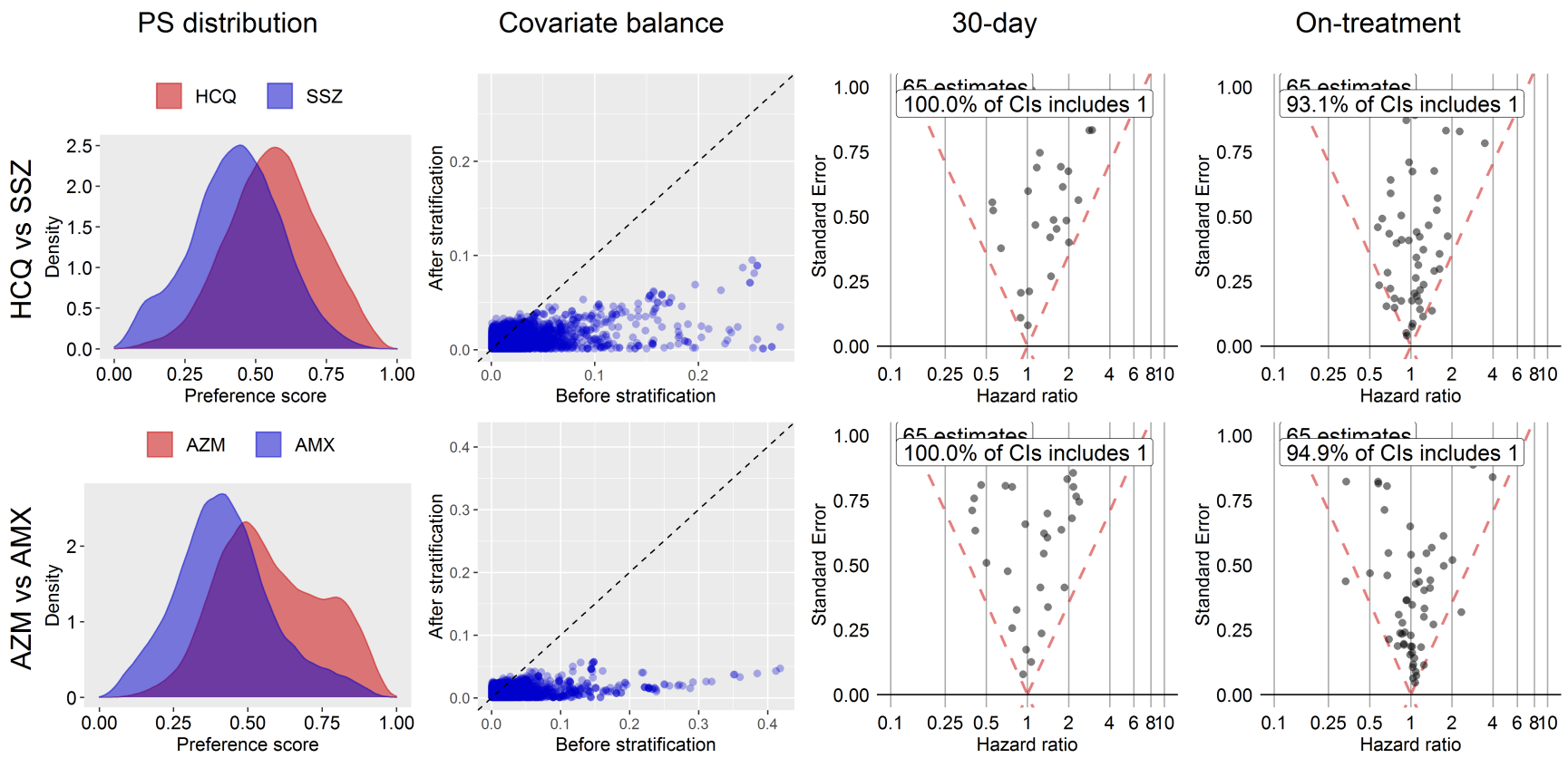
## S9. Evidence evaluation diagnostics

Preference score overlap, covariate balance, and empirical calibration plots are reported below. The preference score is a transformation of the propensity score that adjusts for differences in the sizes of the two exposure cohorts in a pairwise comparison. A higher overlap indicates patients in the two cohorts were more similar in terms of their predicted probability of receiving one exposure relative to the other. In the covariate balance plots, each dot represents the standardizes difference of means for a single covariate before and after propensity score stratification. The empirical calibration plots show effect estimates for the negative controls where the true hazard ratio is expected to equal 1. Estimates below the diagonal dashed lines are statistically significantly different (alpha = 0.05) from the true effect size. A well-calibrated estimator should produce the true effect sizes within the 95 percent confidence interval 95 percent of the time. Negative control estimates are not reported if fewer than 5 events are observed. *On-treatment* time-at-risk was unavailable in the PanTher databases so no negative control effects were estimated. In DAGermany and JMDC, the hydroxychloroquine+azithromycin and hydroxychloroquine+amoxicillin cohorts were of insufficient sample size for the cross-validation procedure for hyperparameter selection in the regularized regression used for fitting propensity scores, so diagnostics were not reported.

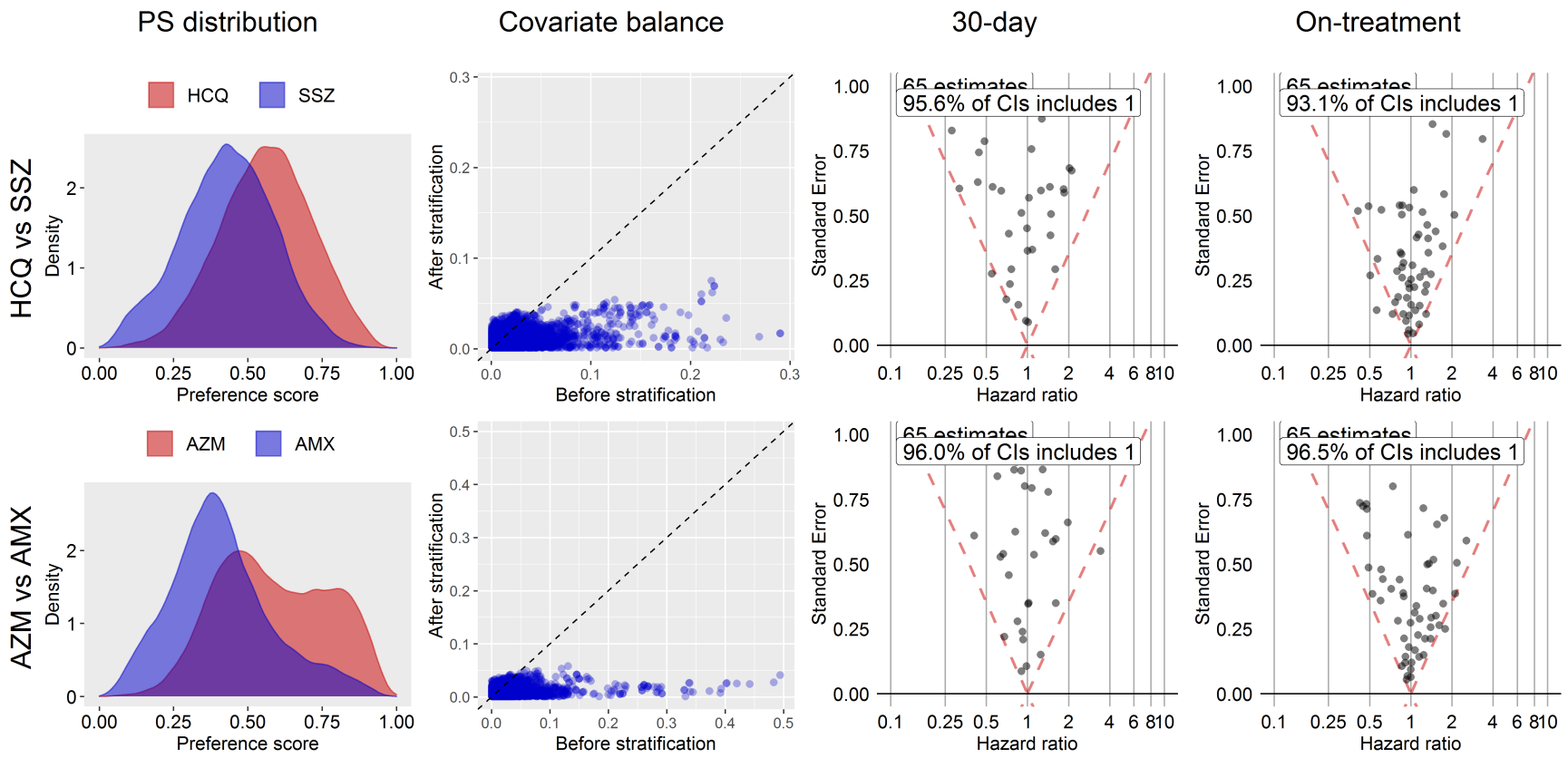
**S9.1. AmbEMR**


PS distribution
Covariate balance
30-day
On-treatment
HCQ vs SSZ
HCQ
SSZ
Density
Preference score
After stratification
Before stratification
65 estimates
96.3% of CIs includes 1
95.1% of CIs includes 1
Standard Error
Hazard ratio
AZM vs AMX
AZM
AMX
100.0% of CIs includes 1

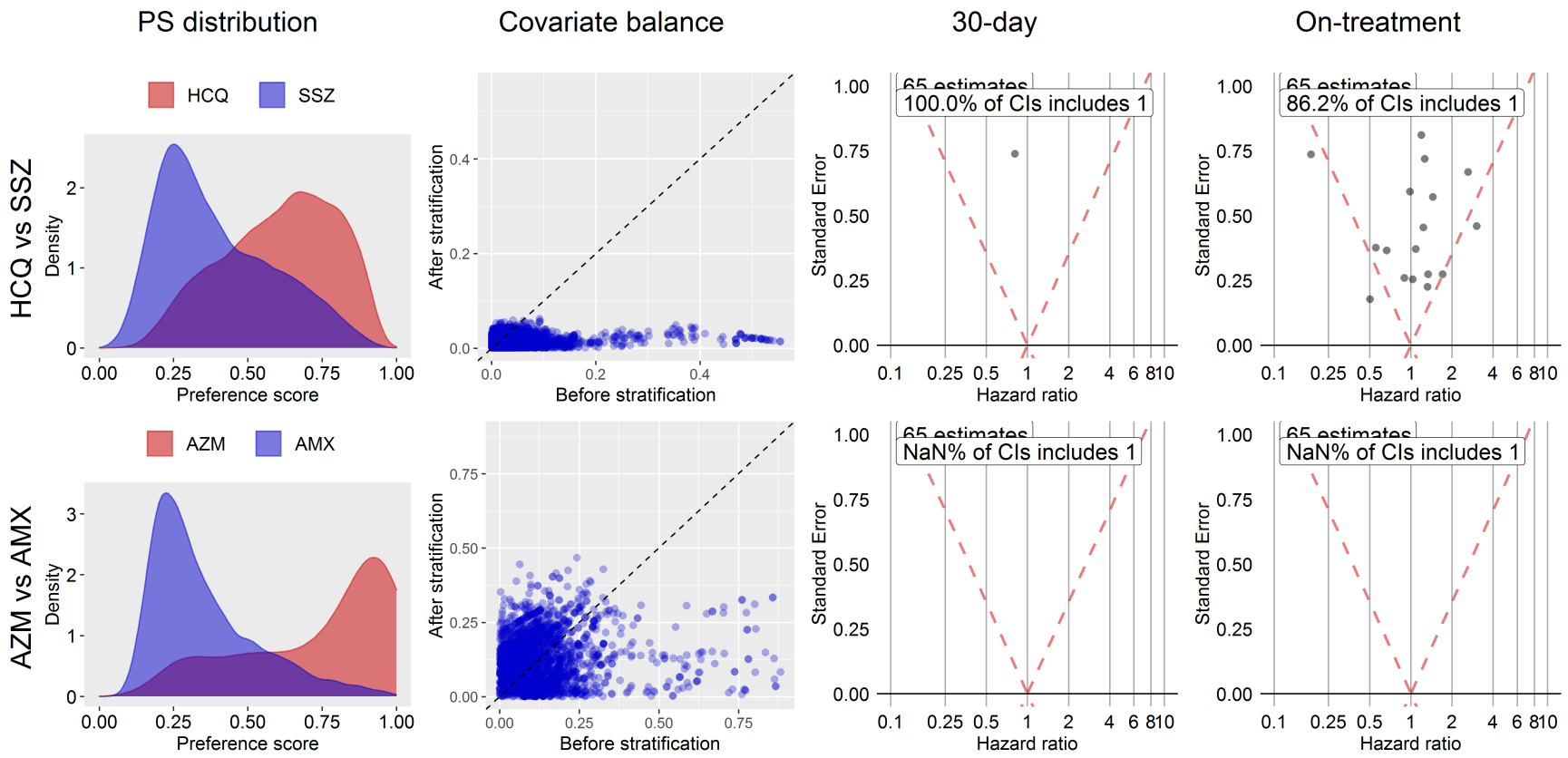
## S9.2. CCAE


PS distribution
Covariate balance
30-day
On-treatment
HCQ
SSZ
HCQ vs SSZ
Density
Preference score
After stratification
Before stratification
65 estimates
100.0% of CIs includes 1
93.1% of CIs includes 1
Standard Error
Hazard ratio
AZM
AMX
AZM vs AMX
94.9% of CIs includes 1

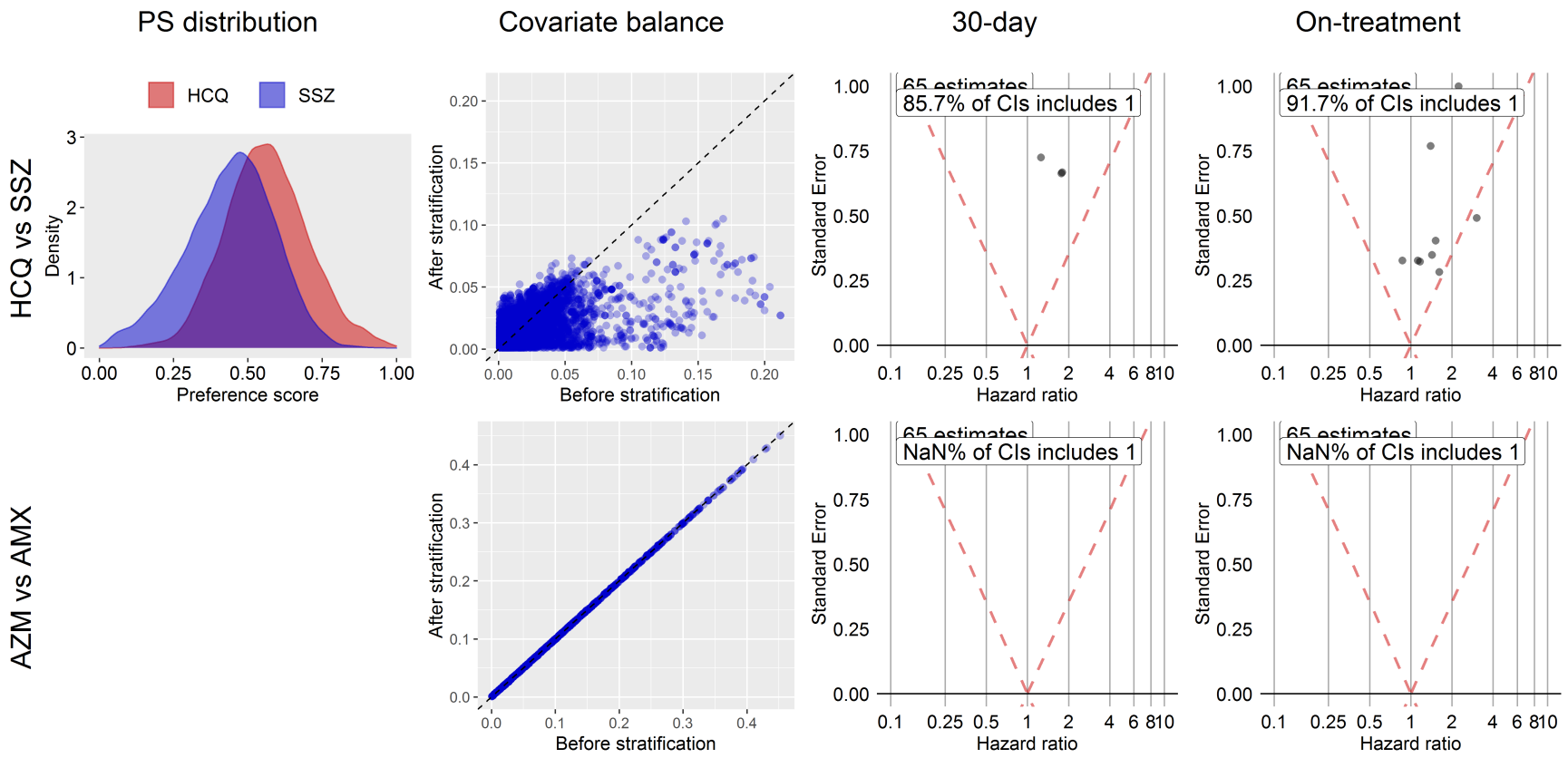
## S9.3. Clinformatics



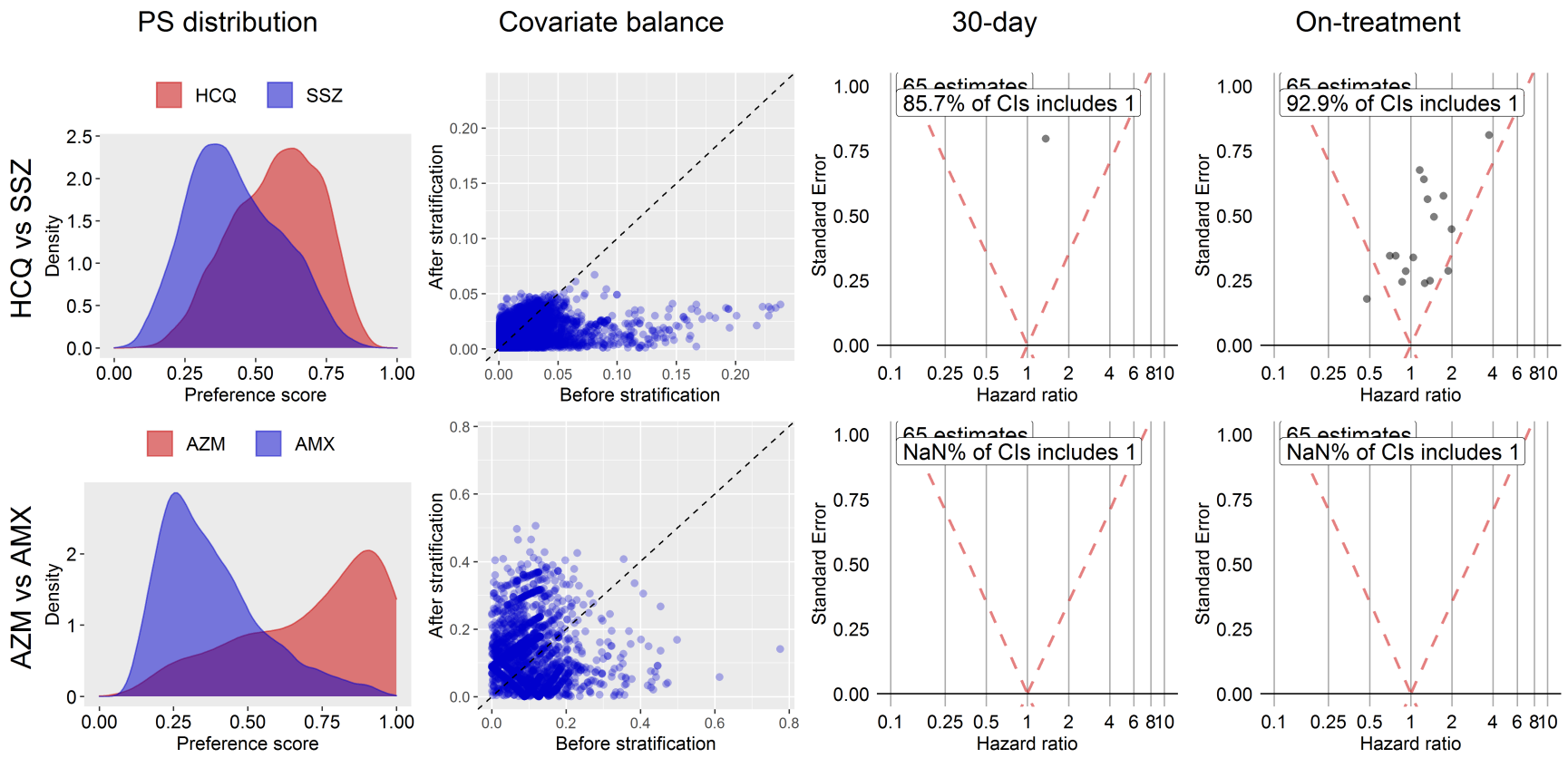
## S9.4. CPRD


PS distribution
Covariate balance
30-day
On-treatment
HCQ vs SSZ
HCQ
SSZ
Density
Preference score
After stratification
Before stratification
65 estimates
100.0% of CIs includes 1
86.2% of CIs includes 1
Standard Error
Hazard ratio
AZM vs AMX
AZM
AMX
NaN% of CIs includes 1

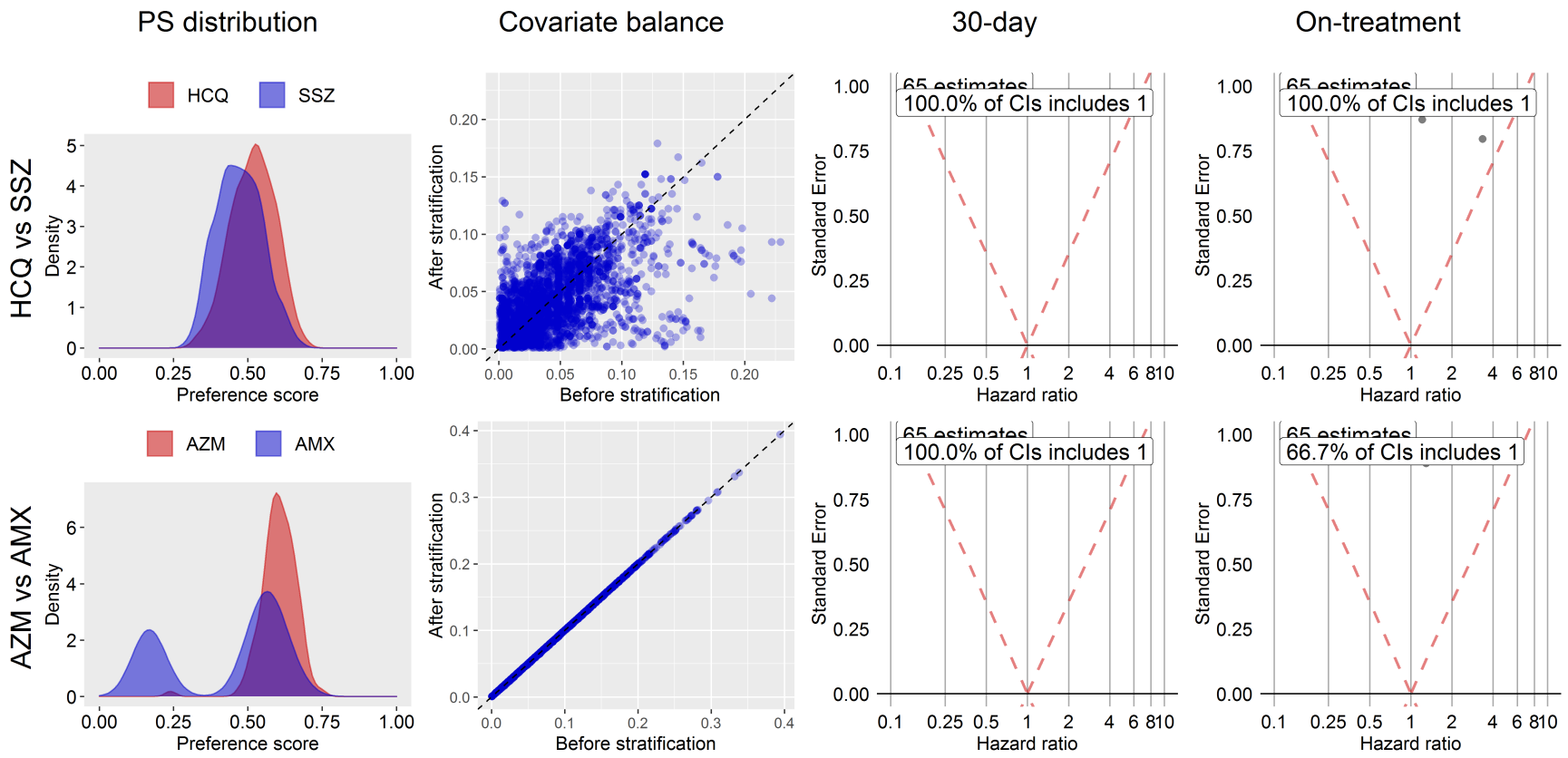
## S9.5. DAGermany



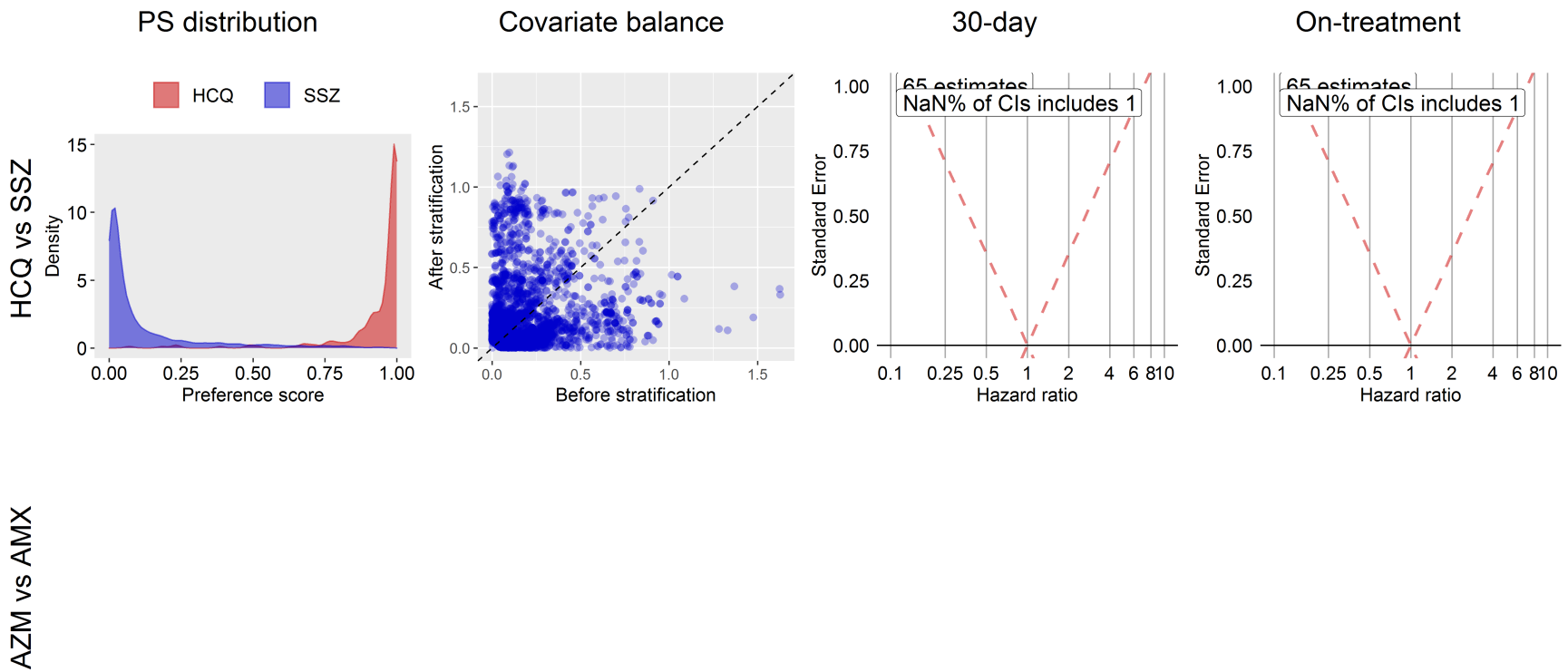
## S9.6. IMRD


PS distribution
Covariate balance
30-day
On-treatment
HCQ
SSZ
HCQ vs SSZ
Density
Preference score
After stratification
Before stratification
65 estimates
85.7% of CIs includes 1
92.9% of CIs includes 1
Standard Error
Hazard ratio
AZM
AMX
AZM vs AMX
NaN% of CIs includes 1

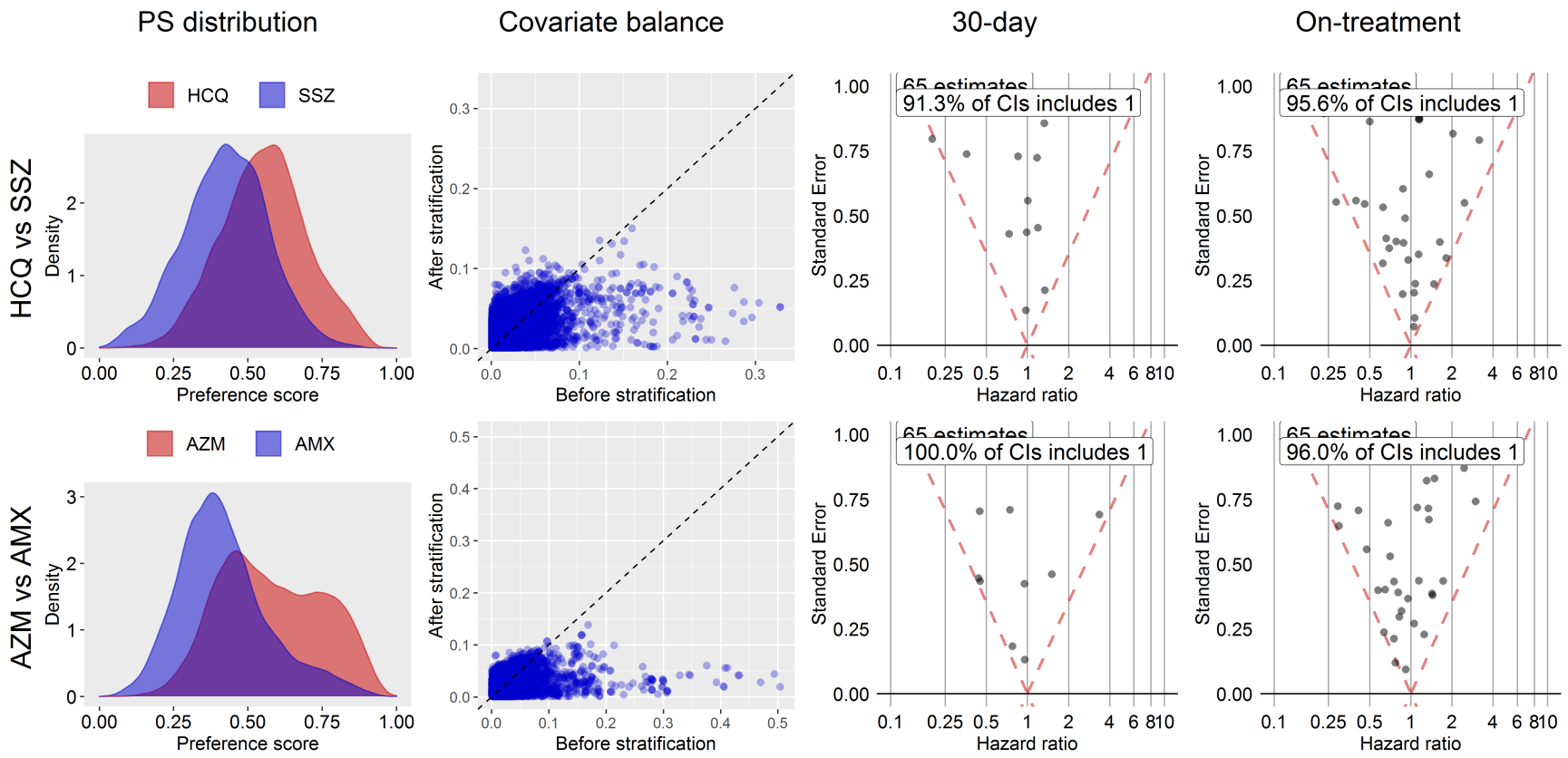
## S9.7. IPCI


PS distribution
Covariate balance
30-day
On-treatment
HCQ
SSZ
HCQ vs SSZ
Density
Preference score
After stratification
Before stratification
Standard Error
Hazard ratio
65 estimates
100.0% of CIs includes 1
AZM
AMX
AZM vs AMX
66.7% of CIs includes 1

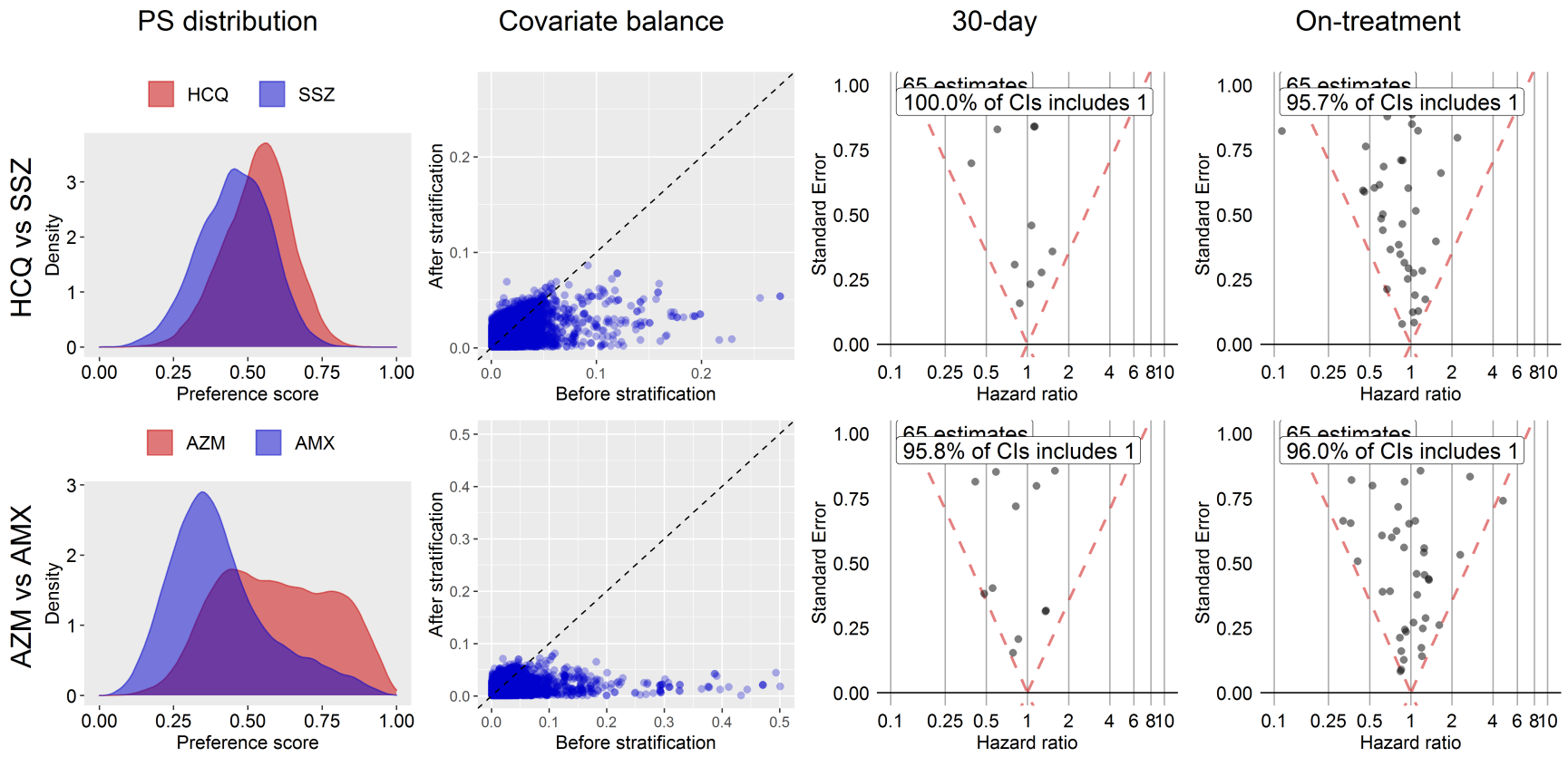
**S9.8. JMDC**


PS distribution
Covariate balance
30-day
On-treatment
HCQ vs SSZ
AZM vs AMX
HCQ
SSZ
Density
Preference score
After stratification
Before stratification
Standard Error
Hazard ratio
NaN% of CIs includes 1

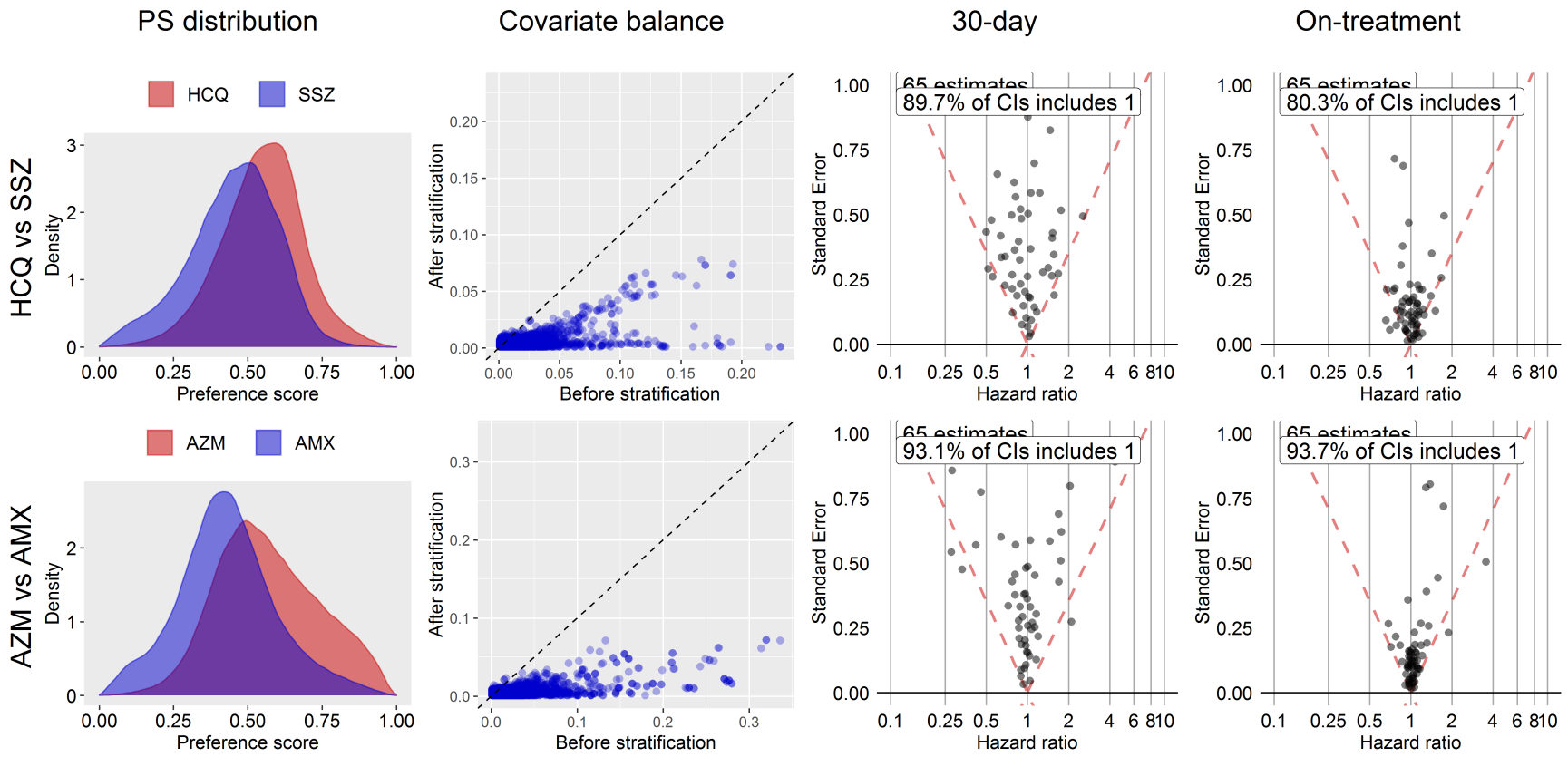
**S9.9. MDCD**


PS distribution
Covariate balance
30-day
On-treatment
HCQ
SSZ
HCQ vs SSZ
Density
Preference score
After stratification
Before stratification
65 estimates
91.3% of CIs includes 1
95.6% of CIs includes 1
Standard Error
Hazard ratio
AZM
AMX
AZM vs AMX
100.0% of CIs includes 1
96.0% of CIs includes 1

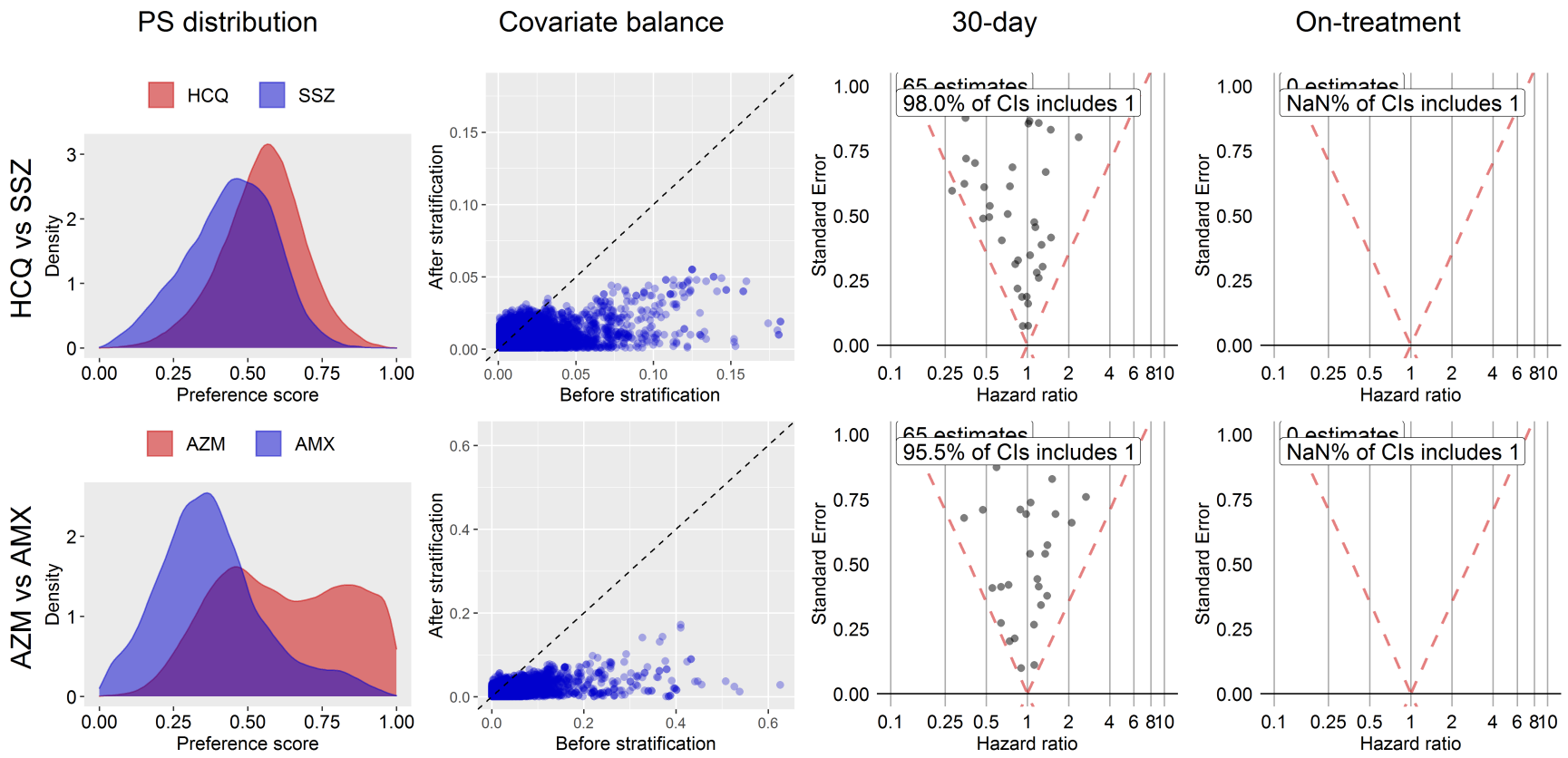
**S9.10. MDCR**


PS distribution
Covariate balance
30-day
On-treatment
HCQ vs SSZ
HCQ
SSZ
Density
Preference score
After stratification
Before stratification
Standard Error
Hazard ratio
65 estimates
100.0% of CIs includes 1
95.7% of CIs includes 1
AZM vs AMX
AZM
AMX
95.8% of CIs includes 1
96.0% of CIs includes 1

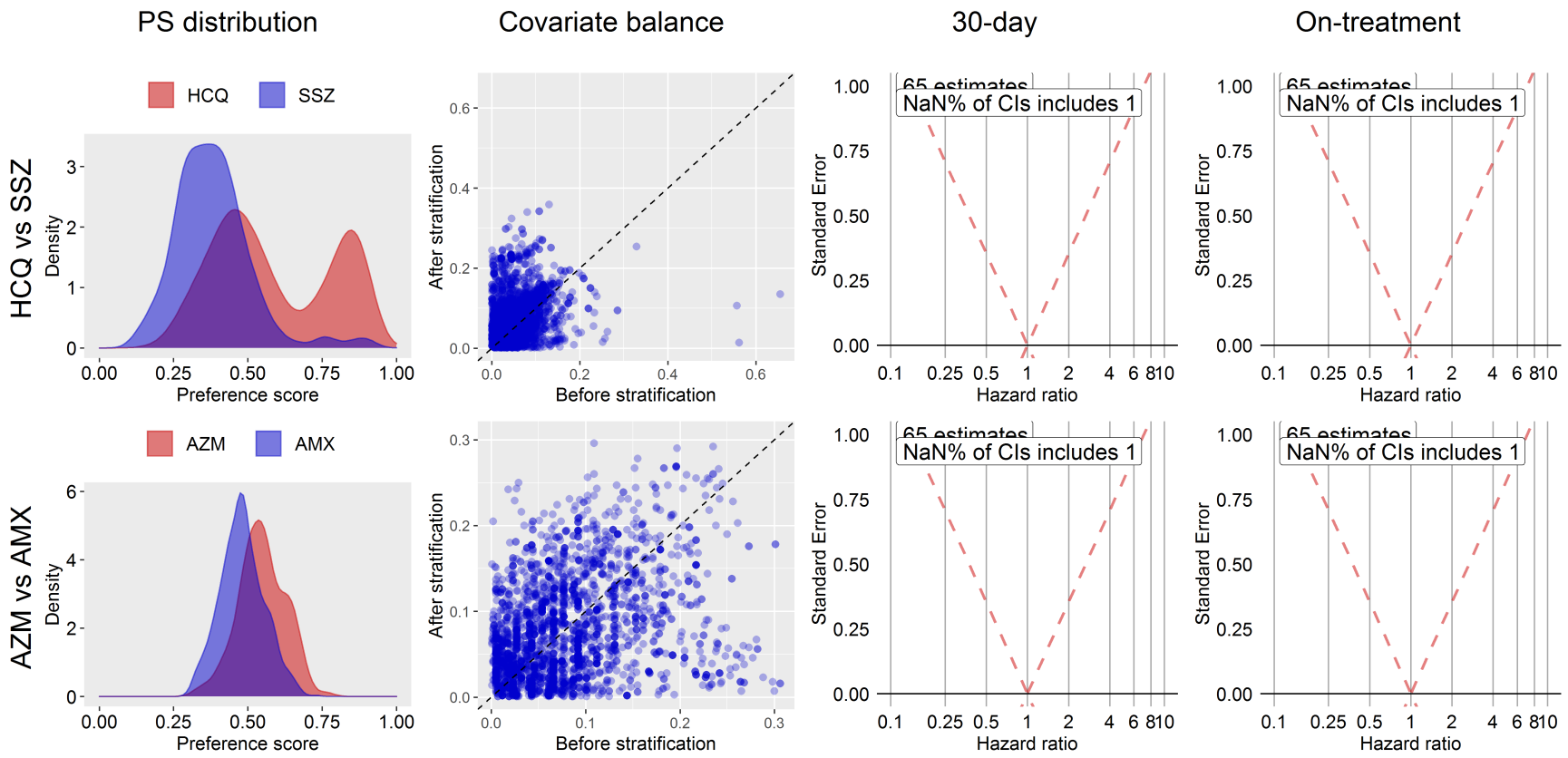
## S9.11. OpenClaims



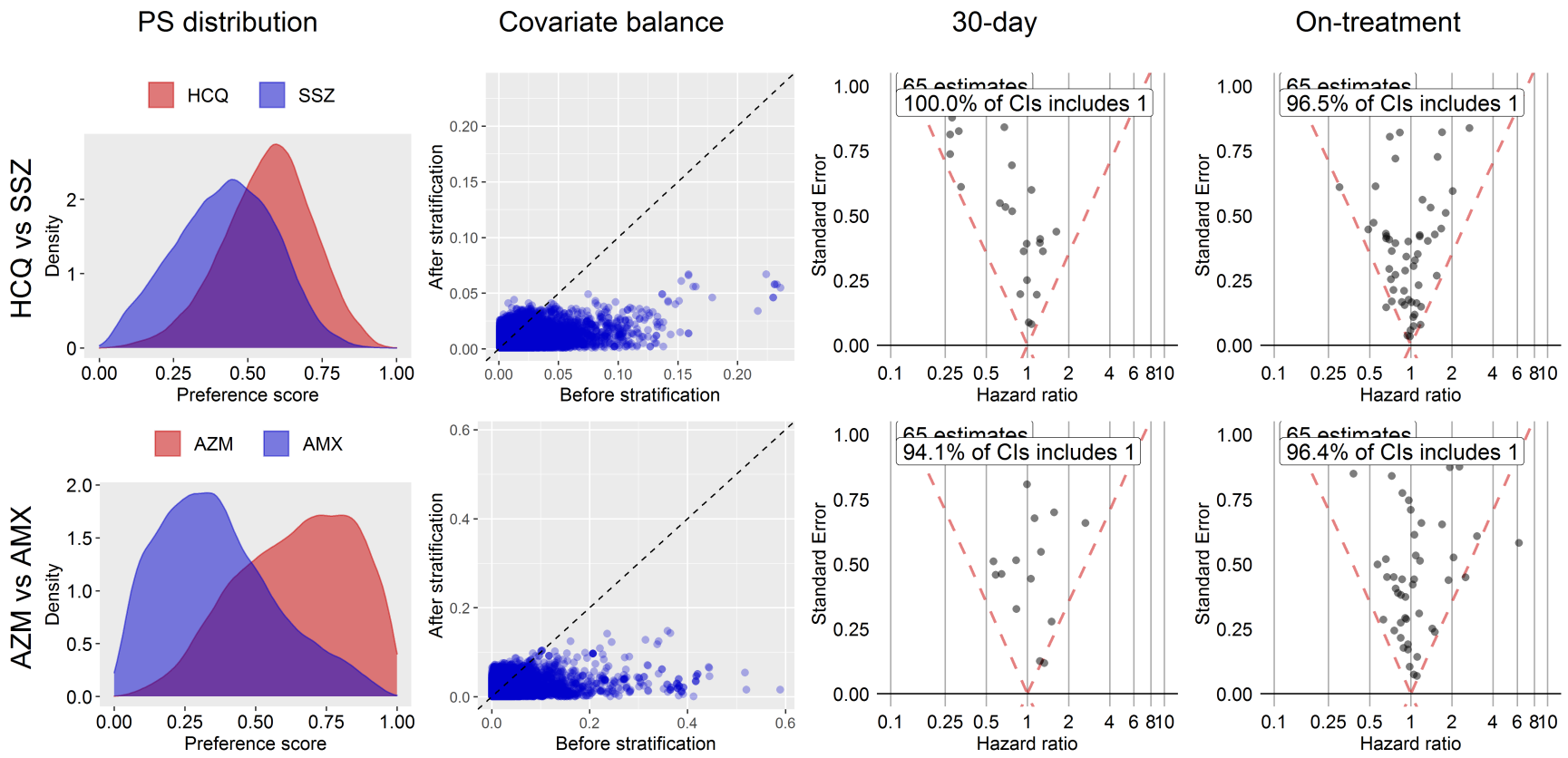
## S9.12. OptumEHR



## S9.13. SIDIAP


PS distribution
Covariate balance
30-day
On-treatment
HCQ vs SSZ
HCQ
SSZ
Density
Preference score
After stratification
Before stratification
Standard Error
Hazard ratio
65 estimates
NaN% of CIs includes 1
AZM vs AMX
AZM
AMX

**S9.14. VA**


PS distribution
Covariate balance
30-day
On-treatment
HCQ vs SSZ
HCQ
SSZ
Density
Preference score
After stratification
Before stratification
65 estimates
100.0% of CIs includes 1
96.5% of CIs includes 1
Standard Error
Hazard ratio
AZM vs AMX
AZM
AMX
94.1% of CIs includes 1
96.4% of CIs includes 1

## S10. Self-controlled case series results for hydroxychloroquine

### S10.1. CCAE

| Outcome | Analysis | Cases | IRR | 95% CI LB | 95% CI UB | Calibrated P | Calibrated IRR | Calibrated 95% CI LB | Calibrated 95% CI UB |
|---|---|---|---|---|---|---|---|---|---|
| Myocardial infarction | Adjusting for event-dependent observation | 14,483 | 0.91 | 0.83 | 0.99 | 0.53 | 0.91 | 0.69 | 1.21 |
| | Primary analysis | 14,483 | 0.91 | 0.84 | 1 | 0.57 | 0.92 | 0.7 | 1.22 |
| Acute pancreatitis events | Adjusting for event-dependent observation | 13,221 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 13,221 | 0.89 | 0.81 | 0.99 | 0.48 | 0.9 | 0.68 | 1.2 |
| Acute renal failure | Adjusting for event-dependent observation | 17,178 | 0.88 | 0.82 | 0.94 | 0.38 | 0.88 | 0.67 | 1.16 |
| | Primary analysis | 17,178 | 0.9 | 0.84 | 0.96 | 0.47 | 0.9 | 0.69 | 1.19 |
| Gastrointestinal bleeding | Adjusting for event-dependent observation | 15,638 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 15,638 | 1 | 0.92 | 1.07 | 0.94 | 1.01 | 0.76 | 1.32 |
| Cardiac arrhythmia | Adjusting for event-dependent observation | 14,328 | 0.94 | 0.86 | 1.03 | 0.71 | 0.95 | 0.72 | 1.25 |
| | Primary analysis | 14,328 | 0.94 | 0.86 | 1.03 | 0.74 | 0.95 | 0.72 | 1.26 |
| Bradycardia | Adjusting for event-dependent observation | 12,248 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 12,248 | 0.71 | 0.63 | 0.81 | 0.03 | 0.72 | 0.54 | 0.96 |
| Chest pain or angina | Adjusting for event-dependent observation | 13,399 | 0.9 | 0.81 | 1 | 0.53 | 0.91 | 0.69 | 1.21 |
| | Primary analysis | 13,399 | 0.9 | 0.81 | 1 | 0.52 | 0.91 | 0.69 | 1.21 |
| End stage renal disease | Adjusting for event-dependent observation | 11,303 | 1.01 | 0.65 | 1.16 | 0.93 | 1.02 | 0.69 | 1.51 |
| | Primary analysis | 11,303 | 1.02 | 0.88 | 1.18 | 0.85 | 1.03 | 0.76 | 1.39 |
| Heart failure | Adjusting for event-dependent observation | 15,626 | 0.98 | 0.9 | 1.05 | 0.91 | 0.99 | 0.75 | 1.29 |
| | Primary analysis | 15,626 | 0.98 | 0.91 | 1.06 | 0.93 | 0.99 | 0.75 | 1.3 |
| Hepatic failure | Adjusting for event-dependent observation | 11,254 | 0.67 | 0.57 | 0.78 | 0.01 | 0.68 | 0.5 | 0.92 |
| | Primary analysis | 11,254 | 0.64 | 0.54 | 0.75 | 0.01 | 0.64 | 0.47 | 0.88 |
| Stroke | Adjusting for event-dependent observation | 15,535 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 15,535 | 0.79 | 0.73 | 0.86 | 0.12 | 0.8 | 0.61 | 1.06 |
| Cardiovascular events | Adjusting for event-dependent observation | 15,200 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 15,200 | 0.86 | 0.79 | 0.93 | 0.3 | 0.86 | 0.66 | 1.14 |
| Transient ischemic attack | Adjusting for event-dependent observation | 14,563 | 0.9 | 0.85 | 0.98 | 0.51 | 0.91 | 0.69 | 1.2 |
| | Primary analysis | 14,563 | 0.91 | 0.83 | 0.99 | 0.55 | 0.92 | 0.7 | 1.21 |
| Venous thromboembolism | Adjusting for event-dependent observation | 16,595 | 0.78 | 0.5 | 0.84 | 0.22 | 0.79 | 0.54 | 1.15 |
| | Primary analysis | 16,595 | 0.8 | 0.75 | 0.86 | 0.14 | 0.81 | 0.62 | 1.07 |

**IRR**= Incidence Rate Ratio **95%CI LB**= 95% Confidence Interval Lower Boundary **95%CI UB**= 95% Confidence Interval Upper Boundary

## S10.2. Clinformatics

| Outcome | Analysis | Cases | IRR | 95% CI LB | 95% CI UB | Calibrated P | Calibrated IRR | Calibrated 95% CI LB | Calibrated 95% CI UB |
|---|---|---|---|---|---|---|---|---|---|
| Myocardial infarction | Adjusting for event-dependent observation | 14,351 | 1.11 | 1.02 | 1.21 | 0.51 | 1.11 | 0.81 | 1.54 |
| | Primary analysis | 14,351 | 1.01 | 0.92 | 1.1 | 0.92 | 1.02 | 0.74 | 1.4 |
| Acute pancreatitis events | Adjusting for event-dependent observation | 12,730 | 1.04 | 0.93 | 1.16 | 0.78 | 1.05 | 0.75 | 1.46 |
| | Primary analysis | 12,730 | 1.04 | 0.93 | 1.16 | 0.78 | 1.05 | 0.75 | 1.46 |
| Acute renal failure | Adjusting for event-dependent observation | 14,919 | 0.96 | 0.48 | 1.04 | 0.88 | 0.96 | 0.58 | 1.59 |
| | Primary analysis | 14,919 | 0.99 | 0.91 | 1.07 | 0.94 | 0.99 | 0.72 | 1.37 |
| Gastrointestinal bleeding | Adjusting for event-dependent observation | 14,884 | 1.12 | 1.03 | 1.22 | 0.46 | 1.13 | 0.82 | 1.55 |
| | Primary analysis | 14,884 | 1.05 | 0.97 | 1.14 | 0.74 | 1.06 | 0.77 | 1.46 |
| Cardiac arrhythmia | Adjusting for event-dependent observation | 13,388 | 1.02 | 0.92 | 1.13 | 0.88 | 1.03 | 0.74 | 1.42 |
| | Primary analysis | 13,388 | 1.03 | 0.93 | 1.13 | 0.85 | 1.03 | 0.74 | 1.43 |
| Bradycardia | Adjusting for event-dependent observation | 13,682 | 0.9 | 0.77 | 1 | 0.58 | 0.91 | 0.65 | 1.27 |
| | Primary analysis | 13,682 | 0.92 | 0.83 | 1.01 | 0.63 | 0.92 | 0.67 | 1.28 |
| Chest pain or angina | Adjusting for event-dependent observation | 13,093 | 1.06 | 0.96 | 1.18 | 0.7 | 1.07 | 0.77 | 1.48 |
| | Primary analysis | 13,093 | 1.06 | 0.95 | 1.17 | 0.72 | 1.06 | 0.76 | 1.47 |
| End stage renal disease | Adjusting for event-dependent observation | 11,891 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 11,891 | 1.26 | 1.11 | 1.42 | 0.17 | 1.26 | 0.9 | 1.76 |
| Heart failure | Adjusting for event-dependent observation | 13,817 | 1.14 | 1.04 | 1.25 | 0.41 | 1.15 | 0.83 | 1.58 |
| | Primary analysis | 13,817 | 1.12 | 1.02 | 1.23 | 0.47 | 1.13 | 0.82 | 1.56 |
| Hepatic failure | Adjusting for event-dependent observation | 11,571 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 11,571 | 0.72 | 0.62 | 0.83 | 0.07 | 0.73 | 0.52 | 1.02 |
| Stroke | Adjusting for event-dependent observation | 14,342 | 0.97 | 0.89 | 1.05 | 0.86 | 0.97 | 0.7 | 1.34 |
| | Primary analysis | 14,342 | 0.89 | 0.82 | 0.97 | 0.51 | 0.9 | 0.65 | 1.24 |
| Cardiovascular events | Adjusting for event-dependent observation | 14,189 | 0.9 | 0.18 | 0.98 | 0.82 | 0.9 | 0.37 | 2.21 |
| | Primary analysis | 14,189 | 0.94 | 0.86 | 1.03 | 0.75 | 0.95 | 0.69 | 1.31 |
| Transient ischemic attack | Adjusting for event-dependent observation | 14,895 | 0.94 | 0.86 | 1.02 | 0.73 | 0.94 | 0.68 | 1.3 |
| | Primary analysis | 14,895 | 0.93 | 0.85 | 1.01 | 0.68 | 0.93 | 0.68 | 1.29 |
| Venous thromboembolism | Adjusting for event-dependent observation | 15,377 | 0.85 | 0.79 | 0.92 | 0.36 | 0.86 | 0.62 | 1.18 |
| | Primary analysis | 15,377 | 0.84 | 0.77 | 0.91 | 0.3 | 0.84 | 0.61 | 1.16 |

**IRR**= Incidence Rate Ratio **95%CI LB**= 95% Confidence Interval Lower Boundary **95%CI UB**= 95% Confidence Interval Upper Boundary

## S10.3. CPRD

| Outcome | Analysis | Cases | IRR | 95% CI LB | 95% CI UB | Calibrated P | Calibrated IRR | Calibrated 95% CI LB | Calibrated 95% CI UB |
|---|---|---|---|---|---|---|---|---|---|
| Myocardial infarction | Adjusting for event-dependent observation | 0 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 0 | NA | NA | NA | NA | NA | NA | NA |
| Acute pancreatitis events | Adjusting for event-dependent observation | 0 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 0 | NA | NA | NA | NA | NA | NA | NA |
| Acute renal failure | Adjusting for event-dependent observation | 0 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 0 | NA | NA | NA | NA | NA | NA | NA |
| Gastrointestinal bleeding | Adjusting for event-dependent observation | 0 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 0 | NA | NA | NA | NA | NA | NA | NA |
| Cardiac arrhythmia | Adjusting for event-dependent observation | 12,614 | 0.86 | 0.77 | 0.97 | 0.81 | 0.95 | 0.61 | 1.47 |
| | Primary analysis | 12,614 | 0.87 | 0.77 | 0.98 | 0.83 | 0.95 | 0.61 | 1.48 |
| Bradycardia | Adjusting for event-dependent observation | 7,094 | 0.6 | 0.18 | 1.68 | 0.49 | 0.65 | 0.2 | 2.16 |
| | Primary analysis | 7,094 | 0.62 | 0.19 | 1.69 | 0.51 | 0.68 | 0.21 | 2.18 |
| Chest pain or angina | Adjusting for event-dependent observation | 13,376 | 0.89 | 0.8 | 1 | 0.9 | 0.98 | 0.63 | 1.52 |
| | Primary analysis | 13,376 | 0.89 | 0.8 | 1 | 0.9 | 0.98 | 0.63 | 1.52 |
| End stage renal disease | Adjusting for event-dependent observation | 1,496 | 0.84 | 0.14 | 4.51 | 0.92 | 0.91 | 0.15 | 5.49 |
| | Primary analysis | 1,496 | 0.83 | 0.14 | 4.41 | 0.91 | 0.91 | 0.15 | 5.31 |
| Heart failure | Adjusting for event-dependent observation | 10,215 | 1.1 | 0.76 | 1.56 | 0.53 | 1.2 | 0.69 | 2.09 |
| | Primary analysis | 10,215 | 1.1 | 0.77 | 1.58 | 0.52 | 1.21 | 0.69 | 2.11 |
| Hepatic failure | Adjusting for event-dependent observation | 2,710 | 1 | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 2,710 | 0.09 | 0 | 0.77 | 0.08 | 0.09 | 0.01 | 1.35 |
| Stroke | Adjusting for event-dependent observation | 0 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 0 | NA | NA | NA | NA | NA | NA | NA |
| Cardiovascular events | Adjusting for event-dependent observation | 0 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 0 | NA | NA | NA | NA | NA | NA | NA |
| Transient ischemic attack | Adjusting for event-dependent observation | 0 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 0 | NA | NA | NA | NA | NA | NA | NA |
| Venous thromboembolism | Adjusting for event-dependent observation | 12,454 | 0.64 | 0.56 | 0.72 | 0.12 | 0.7 | 0.45 | 1.09 |
| | Primary analysis | 12,454 | 0.63 | 0.55 | 0.71 | 0.11 | 0.69 | 0.44 | 1.07 |

**IRR**= Incidence Rate Ratio **95%CI LB**= 95% Confidence Interval Lower Boundary **95%CI UB**= 95% Confidence Interval Upper Boundary

## S10.4. JMDC

| Outcome | Analysis | Cases | IRR | 95% CI LB | 95% CI UB | Calibrated P | Calibrated IRR | Calibrated 95% CI LB | Calibrated 95% CI UB |
|---|---|---|---|---|---|---|---|---|---|
| Myocardial infarction | Adjusting for event-dependent observation | 5,788 | 0 | NA | 0 | NA | NA | NA | NA |
| | Primary analysis | 5,789 | 0 | NA | 1.19 | NA | NA | NA | NA |
| Acute pancreatitis events | Adjusting for event-dependent observation | 5,307 | 1.42 | 0.06 | 25.06 | 0.62 | 2.18 | 0.11 | 43.82 |
| | Primary analysis | 5,307 | 1.38 | 0.06 | 13.42 | 0.6 | 2.11 | 0.14 | 31.5 |
| Acute renal failure | Adjusting for event-dependent observation | 3,598 | 0.86 | 0.18 | 3.12 | 0.73 | 1.33 | 0.31 | 5.71 |
| | Primary analysis | 3,598 | 0.91 | 0.19 | 3.37 | 0.69 | 1.39 | 0.32 | 6.12 |
| Gastrointestinal bleeding | Adjusting for event-dependent observation | 10,009 | 0.16 | 0.01 | 0.82 | 0.25 | 0.25 | 0.03 | 2.44 |
| | Primary analysis | 10,009 | 0.16 | 0.01 | 0.79 | 0.24 | 0.24 | 0.03 | 2.38 |
| Cardiac arrhythmia | Adjusting for event-dependent observation | 10,034 | 0.4 | 0.11 | 1.2 | 0.5 | 0.62 | 0.18 | 2.15 |
| | Primary analysis | 10,034 | 0.38 | 0.1 | 1.11 | 0.43 | 0.58 | 0.17 | 1.98 |
| Bradycardia | Adjusting for event-dependent observation | 5,813 | 2.4 | 0.11 | 20.87 | 0.35 | 3.67 | 0.26 | 50.91 |
| | Primary analysis | 5,813 | 2.41 | 0.11 | 21.25 | 0.35 | 3.69 | 0.26 | 51.54 |
| Chest pain or angina | Adjusting for event-dependent observation | 10,082 | 0.6 | 0.32 | 1.09 | 0.74 | 0.92 | 0.45 | 1.85 |
| | Primary analysis | 10,082 | 0.6 | 0.31 | 1.08 | 0.74 | 0.91 | 0.45 | 1.84 |
| End stage renal disease | Adjusting for event-dependent observation | 2,439 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 2,445 | NA | NA | NA | NA | NA | NA | NA |
| Heart failure | Adjusting for event-dependent observation | 10,071 | 0.67 | 0.34 | 1.23 | 0.77 | 1.02 | 0.5 | 2.1 |
| | Primary analysis | 10,071 | 0.66 | 0.34 | 1.22 | 0.76 | 1.02 | 0.49 | 2.08 |
| Hepatic failure | Adjusting for event-dependent observation | 3,014 | 1 | 0.04 | 15.31 | 0.79 | 1.54 | 0.08 | 30.15 |
| | Primary analysis | 3,014 | 0.97 | 0.04 | 18.75 | 0.81 | 1.48 | 0.07 | 33.23 |
| Stroke | Adjusting for event-dependent observation | 10,001 | 0.74 | 0.23 | 2.1 | 0.8 | 1.13 | 0.36 | 3.55 |
| | Primary analysis | 10,001 | 0.74 | 0.23 | 2.12 | 0.8 | 1.14 | 0.36 | 3.59 |
| Cardiovascular events | Adjusting for event-dependent observation | 10,035 | 0.33 | 0.13 | 0.72 | 0.21 | 0.51 | 0.21 | 1.25 |
| | Primary analysis | 10,035 | 0.33 | 0.13 | 0.72 | 0.2 | 0.5 | 0.2 | 1.25 |
| Transient ischemic attack | Adjusting for event-dependent observation | 2,208 | 0 | NA | 0 | NA | NA | NA | NA |
| | Primary analysis | 2,208 | 0 | NA | 38.67 | NA | NA | NA | NA |
| Venous thromboembolism | Adjusting for event-dependent observation | 10,029 | 0.98 | 0.41 | 2.14 | 0.45 | 1.51 | 0.62 | 3.67 |
| | Primary analysis | 10,029 | 0.98 | 0.41 | 2.14 | 0.45 | 1.51 | 0.62 | 3.67 |

**IRR**= Incidence Rate Ratio **95%CI LB**= 95% Confidence Interval Lower Boundary **95%CI UB**= 95% Confidence Interval Upper Boundary

## S10.5. MDCD

| Outcome | Analysis | Cases | IRR | 95% CI LB | 95% CI UB | Calibrated P | Calibrated IRR | Calibrated 95% CI LB | Calibrated 95% CI UB |
|---|---|---|---|---|---|---|---|---|---|
| Myocardial infarction | Adjusting for event-dependent observation | 11,276 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 11,276 | 0.97 | 0.83 | 1.13 | 0.39 | 0.89 | 0.7 | 1.15 |
| Acute pancreatitis events | Adjusting for event-dependent observation | 10,851 | 1.22 | 1.02 | 1.46 | 0.39 | 1.13 | 0.86 | 1.47 |
| | Primary analysis | 10,851 | 1.22 | 1.02 | 1.45 | 0.4 | 1.12 | 0.86 | 1.46 |
| Acute renal failure | Adjusting for event-dependent observation | 12,714 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 12,714 | 1.09 | 0.98 | 1.21 | 0.92 | 1 | 0.8 | 1.25 |
| Gastrointestinal bleeding | Adjusting for event-dependent observation | 12,000 | 1.03 | 0.91 | 1.16 | 0.66 | 0.95 | 0.75 | 1.2 |
| | Primary analysis | 12,000 | 1.03 | 0.91 | 1.17 | 0.69 | 0.95 | 0.76 | 1.2 |
| Cardiac arrhythmia | Adjusting for event-dependent observation | 12,340 | 1.01 | 0.89 | 1.13 | 0.53 | 0.93 | 0.74 | 1.17 |
| | Primary analysis | 12,340 | 1.01 | 0.89 | 1.13 | 0.54 | 0.93 | 0.74 | 1.17 |
| Bradycardia | Adjusting for event-dependent observation | 10,541 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 10,541 | 0.8 | 0.64 | 1 | 0.05 | 0.74 | 0.55 | 0.99 |
| Chest pain or angina | Adjusting for event-dependent observation | 11,642 | 1.17 | 0.98 | 1.34 | 0.59 | 1.07 | 0.84 | 1.38 |
| | Primary analysis | 11,642 | 1.16 | 1.01 | 1.34 | 0.58 | 1.07 | 0.84 | 1.36 |
| End stage renal disease | Adjusting for event-dependent observation | 10,562 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 10,562 | 1.34 | 1.1 | 1.64 | 0.15 | 1.24 | 0.93 | 1.64 |
| Heart failure | Adjusting for event-dependent observation | 12,030 | 1.03 | 0.91 | 1.17 | 0.68 | 0.95 | 0.75 | 1.2 |
| | Primary analysis | 12,030 | 1.03 | 0.91 | 1.17 | 0.68 | 0.95 | 0.75 | 1.2 |
| Hepatic failure | Adjusting for event-dependent observation | 10,278 | 0.91 | 0.7 | 1.17 | 0.29 | 0.83 | 0.6 | 1.16 |
| | Primary analysis | 10,278 | 0.83 | 0.64 | 1.09 | 0.13 | 0.77 | 0.55 | 1.07 |
| Stroke | Adjusting for event-dependent observation | 11,662 | 0.98 | 0.86 | 1.12 | 0.4 | 0.9 | 0.71 | 1.14 |
| | Primary analysis | 11,662 | 0.92 | 0.81 | 1.06 | 0.2 | 0.85 | 0.67 | 1.08 |
| Cardiovascular events | Adjusting for event-dependent observation | 12,067 | 0.99 | 0.88 | 1.12 | 0.46 | 0.91 | 0.73 | 1.15 |
| | Primary analysis | 12,067 | 0.93 | 0.82 | 1.05 | 0.21 | 0.86 | 0.68 | 1.08 |
| Transient ischemic attack | Adjusting for event-dependent observation | 10,938 | 1.02 | 0.86 | 1.22 | 0.66 | 0.94 | 0.72 | 1.23 |
| | Primary analysis | 10,938 | 1 | 0.84 | 1.19 | 0.57 | 0.92 | 0.71 | 1.2 |
| Venous thromboembolism | Adjusting for event-dependent observation | 12,646 | 0.96 | 0.86 | 1.07 | 0.29 | 0.88 | 0.71 | 1.1 |
| | Primary analysis | 12,646 | 0.95 | 0.85 | 1.05 | 0.25 | 0.87 | 0.7 | 1.09 |

**IRR**= Incidence Rate Ratio **95%CI LB**= 95% Confidence Interval Lower Boundary **95%CI UB**= 95% Confidence Interval Upper Boundary

## S10.6. MDCR

| Outcome | Analysis | Cases | IRR | 95% CI LB | 95% CI UB | Calibrated P | Calibrated IRR | Calibrated 95% CI LB | Calibrated 95% CI UB |
|---|---|---|---|---|---|---|---|---|---|
| Myocardial infarction | Adjusting for event-dependent observation | 14,554 | 1.04 | 0.96 | 1.13 | 0.47 | 1.09 | 0.86 | 1.39 |
| | Primary analysis | 14,554 | 0.94 | 0.86 | 1.03 | 0.91 | 0.99 | 0.78 | 1.26 |
| Acute pancreatitis events | Adjusting for event-dependent observation | 10,998 | 0.98 | 0.82 | 1.16 | 0.86 | 1.03 | 0.77 | 1.36 |
| | Primary analysis | 10,998 | 0.94 | 0.79 | 1.12 | 0.93 | 0.99 | 0.74 | 1.32 |
| Acute renal failure | Adjusting for event-dependent observation | 15,657 | 1.03 | 0.95 | 1.11 | 0.53 | 1.08 | 0.85 | 1.37 |
| | Primary analysis | 15,657 | 0.92 | 0.85 | 1 | 0.8 | 0.97 | 0.76 | 1.23 |
| Gastrointestinal bleeding | Adjusting for event-dependent observation | 15,255 | 0.97 | 0.9 | 1.05 | 0.85 | 1.02 | 0.81 | 1.3 |
| | Primary analysis | 15,255 | 0.92 | 0.84 | 0.99 | 0.75 | 0.96 | 0.76 | 1.22 |
| Cardiac arrhythmia | Adjusting for event-dependent observation | 13,552 | 0.81 | 0.73 | 0.9 | 0.22 | 0.85 | 0.67 | 1.09 |
| | Primary analysis | 13,552 | 0.82 | 0.74 | 0.9 | 0.24 | 0.86 | 0.67 | 1.1 |
| Bradycardia | Adjusting for event-dependent observation | 12,752 | 0.83 | 0.74 | 0.93 | 0.29 | 0.87 | 0.68 | 1.12 |
| | Primary analysis | 12,752 | 0.83 | 0.74 | 0.93 | 0.28 | 0.87 | 0.68 | 1.12 |
| Chest pain or angina | Adjusting for event-dependent observation | 14,060 | 0.91 | 0.82 | 0.99 | 0.69 | 0.95 | 0.75 | 1.21 |
| | Primary analysis | 14,060 | 0.9 | 0.82 | 0.99 | 0.65 | 0.94 | 0.74 | 1.2 |
| End stage renal disease | Adjusting for event-dependent observation | 10,839 | 0.84 | 0.69 | 1.01 | 0.41 | 0.88 | 0.66 | 1.18 |
| | Primary analysis | 10,839 | 0.84 | 0.7 | 1.02 | 0.42 | 0.88 | 0.66 | 1.19 |
| Heart failure | Adjusting for event-dependent observation | 14,531 | 1.06 | 0.98 | 1.16 | 0.37 | 1.12 | 0.88 | 1.42 |
| | Primary analysis | 14,531 | 1.04 | 0.96 | 1.13 | 0.48 | 1.09 | 0.86 | 1.39 |
| Hepatic failure | Adjusting for event-dependent observation | 10,325 | 0.78 | 0.6 | 1.03 | 0.28 | 0.82 | 0.58 | 1.17 |
| | Primary analysis | 10,325 | 0.77 | 0.59 | 1.01 | 0.25 | 0.81 | 0.57 | 1.15 |
| Stroke | Adjusting for event-dependent observation | 14,536 | 0.96 | 0.88 | 1.05 | 0.91 | 1.01 | 0.8 | 1.29 |
| | Primary analysis | 14,536 | 0.89 | 0.81 | 0.97 | 0.57 | 0.93 | 0.73 | 1.18 |
| Cardiovascular events | Adjusting for event-dependent observation | 14,573 | 1.05 | 0.97 | 1.14 | 0.43 | 1.1 | 0.87 | 1.4 |
| | Primary analysis | 14,573 | 0.97 | 0.89 | 1.05 | 0.89 | 1.02 | 0.8 | 1.29 |
| Transient ischemic attack | Adjusting for event-dependent observation | 13,727 | 0.95 | 0.87 | 1.05 | 0.93 | 1 | 0.79 | 1.28 |
| | Primary analysis | 13,727 | 0.93 | 0.84 | 1.02 | 0.82 | 0.97 | 0.76 | 1.24 |
| Venous thromboembolism | Adjusting for event-dependent observation | 16,067 | 0.72 | 0.67 | 0.78 | 0.02 | 0.76 | 0.6 | 0.96 |
| | Primary analysis | 16,067 | 0.68 | 0.63 | 0.73 | 0.01 | 0.71 | 0.56 | 0.91 |

**IRR**= Incidence Rate Ratio **95%CI LB**= 95% Confidence Interval Lower Boundary **95%CI UB**= 95% Confidence Interval Upper Boundary

## S10.7. VA

| Outcome | Analysis | Cases | IRR | 95% CI LB | 95% CI UB | Calibrated P | Calibrated IRR | Calibrated 95% CI LB | Calibrated 95% CI UB |
|---|---|---|---|---|---|---|---|---|---|
| Myocardial infarction | Adjusting for event-dependent observation | 15,437 | 1.30 | 1.20 | 1.40 | 0.94 | 0.99 | 0.73 | 1.34 |
| | Primary analysis | 15,437 | 1.31 | 1.21 | 1.42 | 0.94 | 1.00 | 0.74 | 1.36 |
| Acute pancreatitis events | Adjusting for event-dependent observation | 11,824 | 1.27 | 1.11 | 1.45 | 0.87 | 0.97 | 0.71 | 1.34 |
| | Primary analysis | 11,825 | 1.28 | 1.12 | 1.46 | 0.91 | 0.98 | 0.71 | 1.35 |
| Acute renal failure | Adjusting for event-dependent observation | 17,735 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 17,735 | 1.45 | 1.36 | 1.55 | 0.48 | 1.11 | 0.83 | 1.50 |
| Gastrointestinal bleeding | Adjusting for event-dependent observation | 15,613 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 15,613 | 1.27 | 1.18 | 1.37 | 0.87 | 0.97 | 0.72 | 1.32 |
| Cardiac arrhythmia | Adjusting for event-dependent observation | 15,593 | 1.12 | 1.04 | 1.22 | 0.34 | 0.86 | 0.64 | 1.17 |
| | Primary analysis | 15,593 | 1.11 | 1.02 | 1.20 | 0.29 | 0.85 | 0.63 | 1.15 |
| Bradycardia | Adjusting for event-dependent observation | 13,234 | 1.15 | 1.04 | 1.27 | 0.42 | 0.88 | 0.65 | 1.20 |
| | Primary analysis | 13,234 | 1.21 | 1.10 | 1.34 | 0.64 | 0.93 | 0.68 | 1.26 |
| Chest pain or angina | Adjusting for event-dependent observation | 16,121 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 16,121 | 1.29 | 1.19 | 1.39 | 0.92 | 0.98 | 0.73 | 1.33 |
| End stage renal disease | Adjusting for event-dependent observation | 11,687 | 1.36 | 1.19 | 1.56 | 0.79 | 1.04 | 0.76 | 1.44 |
| | Primary analysis | 11,687 | 1.33 | 1.16 | 1.52 | 0.92 | 1.02 | 0.74 | 1.40 |
| Heart failure | Adjusting for event-dependent observation | 15,772 | 1.34 | 1.25 | 1.45 | 0.85 | 1.03 | 0.76 | 1.39 |
| | Primary analysis | 15,772 | 1.36 | 1.26 | 1.46 | 0.80 | 1.04 | 0.77 | 1.40 |
| Hepatic failure | Adjusting for event-dependent observation | 11,066 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 11,066 | 1.03 | 0.85 | 1.23 | 0.18 | 0.79 | 0.56 | 1.11 |
| Stroke | Adjusting for event-dependent observation | 13,627 | 1.26 | 1.14 | 1.39 | 0.82 | 0.96 | 0.71 | 1.31 |
| | Primary analysis | 13,627 | 1.29 | 1.17 | 1.42 | 0.92 | 0.98 | 0.72 | 1.34 |
| Cardiovascular events | Adjusting for event-dependent observation | 16,687 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 16,687 | 1.41 | 1.31 | 1.51 | 0.63 | 1.08 | 0.80 | 1.46 |
| Transient ischemic attack | Adjusting for event-dependent observation | 12,315 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 12,315 | 1.57 | 1.40 | 1.77 | 0.25 | 1.20 | 0.88 | 1.65 |
| Venous thromboembolism | Adjusting for event-dependent observation | 17,469 | NA | NA | NA | NA | NA | NA | NA |
| | Primary analysis | 17,469 | 1.12 | 1.05 | 1.20 | 0.33 | 0.86 | 0.64 | 1.16 |

**IRR**= Incidence Rate Ratio **95%CI LB**= 95% Confidence Interval Lower Boundary **95%CI UB**= 95% Confidence Interval Upper Boundary

## S11. Literature review sources

## S11.1. PubMed search strategy

(((((((("Antirheumatic Agents"[Mesh]) OR (((disease modifying antirheumatic drug*[Title/Abstract] OR disease modifying anti-rheumatic drug*[Title/Abstract] OR disease modifying antirheumatic agent*[Title/Abstract] OR disease modifying anti-rheumatic agent*[Title/Abstract]) OR (DMARD*[Title/Abstract])))) OR ((((((((("hydroxychloroquine"[MeSH Terms]) OR Hydroxychloroquine[Title/Abstract]) OR chloroquinol[Title/Abstract]) OR ercoquin[Title/Abstract]) OR hydrochloroquine[Title/Abstract]) OR hydrocloroquine[Title/Abstract]) OR oxychloroquine[Title/Abstract]) OR plaquenil[Title/Abstract]) OR quensyl[Title/Abstract]) OR "sn 8137"[Title/Abstract])) OR ((((((("tocilizumab"[MeSH Terms]) OR tocilizumab[Title/Abstract]) OR actemra*[Title/Abstract]) OR atlizumab[Title/Abstract]) OR lusinex[Title/Abstract]) OR "r 1569"[Title/Abstract]) OR r1569[Title/Abstract]) OR roactemra[Title/Abstract])) OR "baricitinib"[Supplementary Concept]) OR ((((((((baricitinib[Title/Abstract]) OR "incb 028050"[Title/Abstract]) OR "incb 28050"[Title/Abstract]) OR "incb028050"[Title/Abstract]) OR "incb28050"[Title/Abstract]) OR "ly 3009104"[Title/Abstract]) OR "ly3009104"[Title/Abstract]) OR olumiant[Title/Abstract])) OR ((((((((((((((((((((((((("methotrexate"[MeSH Terms]) OR methotrexate[Title/Abstract]) OR "a methopterine"[Title/Abstract]) OR abitrexate[Title/Abstract]) OR amethopterin*[Title/Abstract]) OR ametopterine[Title/Abstract]) OR antifolan[Title/Abstract]) OR biotrexate[Title/Abstract]) OR canceren[Title/Abstract]) OR "cl 14377"[Title/Abstract]) OR cl14377[Title/Abstract]) OR emtexate[Title/Abstract]) OR emthexat*[Title/Abstract]) OR enthexate[Title/Abstract]) OR emtrexate[Title/Abstract]) OR farmitrexat*[Title/Abstract]) OR farmotrex[Title/Abstract]) OR folex*[Title/Abstract]) OR ifamet[Title/Abstract]) OR imeth[Title/Abstract]) OR "intradose MTX"[Title/Abstract]) OR jylamvo[Title/Abstract]) OR lantarel[Title/Abstract]) OR ledertrexate[Title/Abstract])) OR ((((((((((((((((((((((((((((maxtrex[Title/Abstract]) OR metex[Title/Abstract]) OR methoblastin[Title/Abstract]) OR methohexate[Title/Abstract]) OR methotrate[Title/Abstract]) OR methotrexat*[Title/Abstract]) OR methoxtrexate[Title/Abstract]) OR methrotrexate[Title/Abstract]) OR methylaminopterin*[Title/Abstract]) OR meticil[Title/Abstract]) OR metoject[Title/Abstract]) OR metothrexate[Title/Abstract]) OR metotrex*[Title/Abstract]) OR metrex[Title/Abstract]) OR mexate*[Title/Abstract]) OR "mpi 5004"[Title/Abstract]) OR mpi5004[Title/Abstract]) OR MTX[Title/Abstract]) OR neotrexate[Title/Abstract]) OR nordimet[Title/Abstract]) OR novatrex[Title/Abstract]) OR "nsc 740"[Title/Abstract]) OR nsc740 AND "[Title/Abstract]) OR otrexup[Title/Abstract]) OR rasuvo[Title/Abstract]) OR reumatrex[Title/Abstract]) OR rheumatrex[Title/Abstract]) OR texate*[Title/Abstract]) OR texorate[Title/Abstract]) OR trexall[Title/Abstract]) OR xaken[Title/Abstract]) OR xatmep[Title/Abstract]) OR zexate[Title/Abstract])) OR ((((((((((((((((((((((((((((((sulfasalazine[MeSH Terms]) OR salazosulfapyridine[Title/Abstract]) OR " AND azlufidine en-tabs AND "[Title/Abstract]) OR azopyrin*[Title/Abstract]) OR azosulfidine[Title/Abstract]) OR azulfid*[Title/Abstract]) OR azulfin[Title/Abstract]) OR benzosulfa[Title/Abstract]) OR " AND colo pleon AND "[Title/Abstract]) OR " AND colo-pleon AND "[Title/Abstract]) OR colopleon[Title/Abstract]) OR disalazin[Title/Abstract]) OR gastropyrin[Title/Abstract]) OR " AND pleon ra AND "[Title/Abstract]) OR " AND pyralin en AND "[Title/Abstract]) OR rorasul[Title/Abstract]) OR rosulfant[Title/Abstract]) OR " AND s.a.s.-500 AND "[Title/Abstract]) OR salaz*[Title/Abstract]) OR " AND salicyl azo sulfapyridine AND "[Title/Abstract]) OR salicylazosulfapyridin*[Title/Abstract]) OR salisulf[Title/Abstract]) OR salopyr[Title/Abstract]) OR saridine[Title/Abstract]) OR " AND sas 500 Title/Abstract) OR sulcolon[Title/Abstract]) OR sulfasalazine[Title/Abstract]) OR sulfasalizine[Title/Abstract]) OR sulfosalazine[Title/Abstract]) OR sulphasalazine[Title/Abstract]) OR zopyrin[Title/Abstract]))) AND ((((((((((((((((((((((((((("coronavirus infections"[MeSH Terms]) OR coronavirus*[Title/Abstract]) OR coronovirus*[Title/Abstract]) OR "2019-nCoV"[Title/Abstract]) OR "COVID-19"[Title/Abstract]) OR "CORVID-19"[Title/Abstract]) OR "WN-CoV"[Title/Abstract]) OR "HCoV-19"[Title/Abstract]) OR CoV[Title/Abstract]) OR ncov[Title/Abstract]) OR "SARS-CoV-2"[Title/Abstract]) OR SARSCov19[Title/Abstract]) OR ncov*wuhan[Title/Abstract]) OR "severe acute respiratory syndrome"[MeSH Terms]) OR "severe acute respiratory syndrome"[Title/Abstract]) OR "sudden acute respiratory syndrome"[Title/Abstract]) OR SARS[Title/Abstract]) OR MERS[Title/Abstract]) OR "Middle East Respiratory Syndrome"[Title/Abstract]) OR sars coronavirus[MeSH Terms]) OR viral infection[Title/Abstract]) OR viral disease[Title/Abstract]) OR virus infection[Title/Abstract]) OR virus disease[Title/Abstract]) OR viral pneumonia[MeSH Terms]) OR viral pneumonia[Title/Abstract]) OR influenza[MeSH Terms]) OR influenza[Title/Abstract]) OR flu[Title])

## S11.2. Embase search strategy (1974 to present)

| | |
|---|---|
| 1 | disease modifying antirheumatic drug/ (16237) |
| 2 | disease modifying antirheumatic drug*.ti,ab. (6045) |
| 3 | disease modifying anti-rheumatic drug*.ti,ab. (3750) |
| 4 | disease modifying antirheumatic agent*.ti,ab. (38) |
| 5 | disease modifying anti-rheumatic agent*.ti,ab. (37) |
| 6 | DMARD*.ti,ab. (14249) |
| 7 | hydroxychloroquine/ (23310) |
| 8 | Hydroxychloroquine.ti,ab. (7610) |
| 9 | chloroquinol.ti,ab. (2) |
| 10 | ercoquin.ti,ab. (0) |
| 11 | hydrochloroquine.ti,ab. (56) |
| 12 | hydrocloroquine.ti,ab. (0) |
| 13 | oxychloroquine.ti,ab. (6) |
| 14 | plaquenil.ti,ab. (305) |
| 15 | quensyl.ti,ab. (4) |
| 16 | "sn 8137".ti,ab. (1) |
| 17 | tocilizumab/ (10914) |
| 18 | tocilizumab.ti,ab. (6966) |
| 19 | actemra*.ti,ab. (71) |
| 20 | atlizumab.ti,ab. (21) |
| 21 | lusinex.ti,ab. (0) |
| 22 | "r 1569".ti,ab. (0) |
| 23 | r1569.ti,ab. (0) |
| 24 | roactemra.ti,ab. (43) |
| 25 | baricitinib/ (944) |
| 26 | Baricitinib.ti,ab. (600) |
| 27 | "incb 028050".ti,ab. (2) |
| 28 | "incb 28050".ti,ab. (1) |
| 29 | "incb028050".ti,ab. (18) |
| 30 | "incb28050".ti,ab. (0) |
| 31 | "ly 3009104".ti,ab. (2) |
| 32 | "ly3009104".ti,ab. (19) |
| 33 | olumiant.ti,ab. (8) |
| 34 | methotrexate/ (173846) |
| 35 | methotrexate.ti,ab. (65636) |
| 36 | "a methopterine".ti,ab. (0) |
| 37 | abitrexate.ti,ab. (0) |
| 38 | amethopterin*.ti,ab. (232) |
| 39 | ametopterine.ti,ab. (1) |
| 40 | antifolan.ti,ab. (0) |
| 41 | biotrexate.ti,ab. (3) |
| 42 | canceren.ti,ab. (1) |
| 43 | "cl 14377".ti,ab. (0) |
| 44 | cl14377.ti,ab. (0) |
| 45 | emtexate.ti,ab. (0) |
| 46 | emthexat*.ti,ab. (2) |
| 47 | emtrexate.ti,ab. (1) |
| 48 | enthexate.ti,ab. (0) |
| 49 | farmitrexat*.ti,ab. (0) |
| 50 | farmotrex.ti,ab. (0) |
| 51 | folex*.ti,ab. (3) |
| 52 | ifamet.ti,ab. (0) |
| 53 | imeth.ti,ab. (2) |
| 54 | "intradose MTX".ti,ab. (0) |
| 55 | jylamvo.ti,ab. (0) |
| 56 | lantarel.ti,ab. (3) |
| 57 | ledertrexate.ti,ab. (4) |
| 58 | maxtrex.ti,ab. (0) |
| 59 | metex.ti,ab. (12) |
| 60 | methoblastin.ti,ab. (0) |
| 61 | methohexate.ti,ab. (0) |
| 62 | methotrate.ti,ab. (4) |

| | |
|---|---|
| 63 | methotrexat*.ti,ab. (65844) |
| 64 | methoxtrexate.ti,ab. (3) |
| 65 | methrotrexate.ti,ab. (62) |
| 66 | methylaminopterin*.ti,ab. (6) |
| 67 | meticil.ti,ab. (0) |
| 68 | metoject.ti,ab. (13) |
| 69 | metothrexate.ti,ab. (108) |
| 70 | metotrex*.ti,ab. (257) |
| 71 | metrex.ti,ab. (18) |
| 72 | mexate*.ti,ab. (1) |
| 73 | "mpi 5004".ti,ab. (0) |
| 74 | mpi5004.ti,ab. (0) |
| 75 | MTX.ti,ab. (23376) |
| 76 | neotrexate.ti,ab. (0) |
| 77 | nordimet.ti,ab. (1) |
| 78 | novatrex.ti,ab. (0) |
| 79 | "nsc 740".ti,ab. (34) |
| 80 | "nsc740".ti,ab. (0) |
| 81 | otrexup.ti,ab. (2) |
| 82 | rasuvo.ti,ab. (1) |
| 83 | reumatrex.ti,ab. (0) |
| 84 | rheumatrex.ti,ab. (6) |
| 85 | texate*.ti,ab. (2) |
| 86 | texorate.ti,ab. (0) |
| 87 | trexall.ti,ab. (3) |
| 88 | xaken.ti,ab. (0) |
| 89 | xatmep.ti,ab. (0) |
| 90 | zexate.ti,ab. (0) |
| 91 | salazosulfapyridine/ (24991) |
| 92 | salazosulfapyridine.ti,ab. (403) |
| 93 | "azlufidine en-tabs".ti,ab. (0) |
| 94 | azopyrin*.ti,ab. (0) |
| 95 | azosulfidine.ti,ab. (1) |
| 96 | azulfid*.ti,ab. (81) |
| 97 | azulfin.ti,ab. (0) |
| 98 | benzosulfa.ti,ab. (0) |
| 99 | "colo pleon".ti,ab. (2) |
| 100 | "colo-pleon".ti,ab. (2) |
| 101 | colopleon.ti,ab. (0) |
| 102 | disalazin.ti,ab. (0) |
| 103 | gastropyrin.ti,ab. (0) |
| 104 | "pleon ra".ti,ab. (0) |
| 105 | "pyralin en".ti,ab. (0) |
| 106 | rorasul.ti,ab. (0) |
| 107 | rosulfant.ti,ab. (0) |
| 108 | "s.a.s.-500".ti,ab. (2) |
| 109 | salaz*.ti,ab. (1188) |
| 110 | "salicyl azo sulfapyridine".ti,ab. (2) |
| 111 | salicylazosulfapyridin*.ti,ab. (181) |
| 112 | salisulf.ti,ab. (0) |
| 113 | salopyr.ti,ab. (0) |
| 114 | saridine.ti,ab. (0) |
| 115 | "sas 500".ti,ab. (2) |
| 116 | sulcolon.ti,ab. (0) |
| 117 | sulfasalazine.ti,ab. (5325) |
| 118 | sulfasalizine.ti,ab. (4) |
| 119 | sulfosalazine.ti,ab. (5) |
| 120 | sulphasalazine.ti,ab. (1742) |
| 121 | zopyrin.ti,ab. (0) |
| 122 | 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65 or 66 or 67 or 68 or 69 or 70 or 71 or 72 or 73 or 74 or 75 or 76 or 77 or 78 or 79 or 80 or 81 or 82 or 83 or 84 or 85 or 86 or 87 or 88 or 89 or 90 or 91 or 92 or 93 or 94 or 95 or 96 or 97 or 98 or 99 or 100 or 101 or 102 or 103 or 104 or 105 or 106 or 107 or 108 or 109 or 110 or 111 or 112 or 113 or 114 or 115 or 116 or 117 or 118 or 119 or 120 or 121 (226851) |
| 123 | Coronavirus infection/ (1778) |
| 124 | coronavirus*.ti,ab. (11962) |

| | |
|---|---|
| 125 | coronovirus*.ti,ab. (19) |
| 126 | "2019-nCoV".ti,ab. (233) |
| 127 | "COVID-19".ti,ab. (255) |
| 128 | "CORVID-19".ti,ab. (0) |
| 129 | "WN-CoV".ti,ab. (0) |
| 130 | "HCoV-19".ti,ab. (0) |
| 131 | CoV.ti,ab. (6191) |
| 132 | ncov.ti,ab. (246) |
| 133 | "SARS-CoV-2".ti,ab. (102) |
| 134 | SARSCov19.ti,ab. (0) |
| 135 | ncov*wuhan.ti,ab. (0) |
| 136 | ((outbreak* or "respiratory illness" or "respiratory disease" or respiratory symptom* or seafood market or food market or wildlife) and (Wuhan or China or Chinese)).ti,ab. (5699) |
| 137 | severe acute respiratory syndrome/ (8192) |
| 138 | "severe acute respiratory syndrome".ti,ab. (4884) |
| 139 | "sudden acute respiratory syndrome".ti,ab. (9) |
| 140 | SARS.ti,ab. (9457) |
| 141 | MERS.ti,ab. (4478) |
| 142 | "Middle East Respiratory Syndrome".ti,ab. (1889) |
| 143 | SARS coronavirus/ (4579) |
| 144 | virus infection/ (158726) |
| 145 | ((virus* or viral) adj (infection* or disease*)).ti,ab. (154324) |
| 146 | virus pneumonia/ (6683) |
| 147 | ((viral or virus) adj3 pneumonia).ti,ab. (2989) |
| 148 | exp influenza/ (83690) |
| 149 | influenza.ti,ab. (103586) |
| 150 | flu.ti,ab. (19565) |
| 151 | 123 or 124 or 125 or 126 or 127 or 128 or 129 or 131 or 132 or 133 or 134 or 135 or 136 or 137 or 138 or 139 or 140 or 141 or 142 or 143 or 144 or 145 or 146 or 147 or 148 or 149 or 150 (408377) |
| 152 | 122 and 151 (4890) |
| 153 | limit 152 to (chinese or english or italian or spanish) (4681) |

## S11.3. ClinicalTrials.gov search strategy

for: "disease modifying antirheumatic drug" OR "disease modifying anti-rheumatic drug" OR DMARD OR Hydroxychloroquine OR tocilizumab OR baricitinib OR methotrexate OR Sulfasalazine | Corona Virus Infection OR coronavirus OR coronovirus OR Covid-19 OR "2019-nCoV" OR "SARS-CoV-2" OR "SARSCov19" OR SARS OR "severe acute respiratory syndrome" OR MERS OR "Middle East Respiratory Syndrome" OR viral pneumonia OR influenza

## S11.4. ICTRP strategy

CORONAVIRUS INFECTIONS, CORONAVIRUS SARS-ASSOCIATED, CORONAVIRUS SARS-ASSOCIATED (DIAGNOSIS), MERS, RESPIRATORY SYNDROME, ACUTE, SEVERE, RESPIRATORY SYNDROME, SEVERE ACUTE, SARS, SARS ASSOC CORONAVIRUS, SARS-ASSOCIATED CORONAVIRUS, severe acute respiratory syndrome - middle east respiratory syndrome - CORONAVIRUS INFECT, CORONAVIRUS INFECTION, CORONAVIRUS INFECTION (DIAGNOSIS), CORONAVIRUS INFECTION (DISORDER), CORONAVIRUS INFECTION, UNSPECIFIED, CORONAVIRUS INFECTIONS, CORONAVIRUS INFECTIONS [DISEASE/FINDING], INFECT CORONAVIRUS, INFECTION, CORONAVIRUS, INFECTION; VIRAL, CORONAVIRUS, INFECTIONS, CORONAVIRUS, corona virus infection - PNEUMONIA VIRAL, PNEUMONIA VIRAL NOS, PNEUMONIA, VIRAL, PNEUMONIA, VIRAL [DISEASE/FINDING], PNEUMONIA; VIRAL, PNEUMONIA; VIRUS, PNEUMONIA;VIRAL, PNEUMONIAS, VIRAL, VIRAL PNEUMONITIS, VIRAL; PNEUMONIA, VIRUS; PNEUMONIA, viral pneumonia - coronovirus - CORONA VIRUS INFECTION, CORONAVIRIDAE, FAMILY CORONAVIRIDAE, FAMILY CORONAVIRIDAE (ORGANISM), coronavirus - sars-cov-2 - sarscov19 - AIDS, FLU, FLU SYNDROME, FLU VACCINE, FLU VACCINES, FLU, HUMAN, GRIPPE, HUMAN FLU, SYNDROME FLU, VACCINES, FLU, influenza - 2019-ncov - covid-19 - CORONAVIRUS INFECTIONS, FLJ20450, MERS, MITOCHONDRIAL SERRS, MTSERRS, RESPIRATORY SYNDROME, ACUTE, SEVERE, RESPIRATORY SYNDROME, SEVERE ACUTE, SERINE TRNA LIGASE 1, CYTOPLASMIC, SERINE TRNA LIGASE 2, MITOCHONDRIAL, SERRS, SERRSMT, SERS, SERYL-TRNA SYNTHETASE, SERYL-TRNA SYNTHETASE 2, SERYL-TRNA SYNTHETASE 2, MITOCHONDRIAL, SERYL-TRNA SYNTHETASE, MITOCHONDRIAL, SEVERE ACUTE RESPIRATORY SYNDROME, SEVERE ACUTE RESPIRATORY SYNDROME (DISORDER), SEVERE ACUTE RESPIRATORY SYNDROME [DISEASE/FINDING], SEVERE ACUTE RESPIRATORY SYNDROME NOS, SEVERE ACUTE RESPIRATORY SYNDROME VIRUS, SEVERE ACUTE RESPIRATORY SYNDROME-RELATED CORONAVIRUS, SEVERE ACUTE RESPIRATORY SYNDROME-RELATED CORONAVIRUS (ORGANISM), SYS, sars - CORONA VIRUS INFECTION, CORONAVIRUS INFECT, CORONAVIRUS INFECTION, CORONAVIRUS INFECTION (DIAGNOSIS), CORONAVIRUS INFECTION (DISORDER), CORONAVIRUS INFECTION, UNSPECIFIED, CORONAVIRUS INFECTIONS, CORONAVIRUS INFECTIONS [DISEASE/FINDING], CORONAVIRUS SARS-ASSOCIATED, CORONAVIRUS SARS-ASSOCIATED (DIAGNOSIS), INFECT CORONAVIRUS, INFECTION, CORONAVIRUS, INFECTION; VIRAL, CORONAVIRUS, INFECTIONS, CORONAVIRUS, RESPIRATORY SYNDROME, ACUTE, SEVERE, RESPIRATORY SYNDROME, SEVERE ACUTE, SARS, SARS (SEVERE ACUTE RESPIRATORY SYNDROME), SARS ASSOC CORONAVIRUS, SARS-ASSOCIATED CORONAVIRUS, SEA, SEA (ENVIRONMENT), SEAS, SEVERE ACUTE

RESPIRATORY SYNDROME, SEVERE ACUTE RESPIRATORY SYNDROME (DISORDER), SEVERE ACUTE RESPIRATORY SYNDROME (SARS), SEVERE ACUTE RESPIRATORY SYNDROME (SARS) (DIAGNOSIS), SEVERE ACUTE RESPIRATORY SYNDROME [DISEASE/FINDING], SEVERE ACUTE RESPIRATORY SYNDROME NOS, mers - disease modifying anti-rheumatic drug - disease modifying antirheumatic drug - CHLOROQUINE, HCQ, HYDROXYCHLOROCHIN, OXYCHLOROCHIN, OXYCHLOROQUINE, hydroxychloroquine - SALAZOSULFAPYRIDINE, SALAZOSULPHAPYRIDINE, SALICYLAZOSULFAPYRIDINE, SALICYLAZOSULPHAPYRIDINE, SULFANILAMIDE, SULPHASALAZINE, sulfasalazine - AMETHOPTERIN, MTX, methotrexate - ATLIZUMAB, MONOCLONAL ANTIBODY, MRA, MRA, tocilizumab - baricitinib - [MS100] ANTIRHEUMATICS, AGENTS, ANTI-RHEUMATIC, AGENTS, ANTIRHEUMATIC, ANTI RHEUMATIC AGENTS, ANTI RHEUMATIC DRUGS, ANTI-RHEUMATIC AGENT, ANTI-RHEUMATIC AGENT (PRODUCT), ANTI-RHEUMATIC AGENT, NOS, ANTI-RHEUMATIC AGENTS, ANTI-RHEUMATIC DRUGS, ANTIRHEUMATIC AGENT, ANTIRHEUMATIC AGENT [TC], ANTIRHEUMATIC AGENTS, ANTIRHEUMATIC DISEASE MODIFYING SECOND LINE DRUGS, ANTIRHEUMATIC DISEASE-MODIFYING SECOND-LINE DRUGS, ANTIRHEUMATIC DRUGS, ANTIRHEUMATIC DRUGS DIS MODIFYING, ANTIRHEUMATIC DRUGS, DISEASE MODIFYING, ANTIRHEUMATIC DRUGS, DISEASE-MODIFYING, ANTIRHEUMATICS, DIS MODIFYING ANTIRHEUMATIC DRUGS, DISEASE MODIFYING ANTIRHEUMATIC DRUGS, DISEASE MODIFYING, ANTIRHEUMATIC SECOND LINE DRUGS, DISEASE-MODIFYING ANTIRHEUMATIC DRUG, DISEASE-MODIFYING ANTIRHEUMATIC DRUGS, DISEASE-MODIFYING, ANTIRHEUMATIC SECOND-LINE DRUGS, DRUGS, ANTI-RHEUMATIC, DRUGS, ANTIRHEUMATIC, DRUGS, DISEASE-MODIFYING ANTIRHEUMATIC, dmard

## S12. Ethical Approval

All data partners received IRB approval or waiver in accordance to their institutional governance guidelines.

| Database | Statement |
|---|---|
| AmbEMR | This is a retrospective database study on de-identified data and is deemed not human subject research. Approval is provided for OHDSI community studies. |
| CCAE | New England Institutional Review Board (IRB) and was determined to be exempt from broad IRB approval, as this research project did not involve human subject research. |
| CPRD | Approval for CPRD was provided by the Independent Scientific Advisory Committee (ISAC).<br>This study is based in part on data from the Clinical Practice Research Datalink obtained under licence from the UK Medicines and Healthcare products Regulatory Agency. The data is provided by patients and collected by the NHS as part of their care and support. The interpretation and conclusions contained in this study are those of the author/s alone. The protocol for this study ( 20_059R) was approved by the Independent Scientific Advisory Committee (ISAC). |
| DA Germany | This is a retrospective database study on de-identified data and is deemed not human subject research. Approval is provided for OHDSI community studies. |
| IMRD | The present study is filed and under review for Scientific Review Committee for institutional adjudication. Due to the public health imperative of information related to these data, approval is provided for this publication. |
| IPCI | The present study was approved by the Scientific and Ethical Advisory Board of the IPCI project (project number: 4/2020). |
| JMDC | New England Institutional Review Board (IRB) and was determined to be exempt from broad IRB approval, as this research project did not involve human subject research. |
| MDCD | New England Institutional Review Board (IRB) and was determined to be exempt from broad IRB approval, as this research project did not involve human subject research. |
| MDCD | New England Institutional Review Board (IRB) and was determined to be exempt from broad IRB approval, as this research project did not involve human subject research. |

## S12, Continued.

| Database | Statement |
|---|---|
| Open Claims | This is a retrospective database study on de-identified data and is deemed not human subject research. Approval is provided for OHDSI community studies. |
| Clinformatics | New England Institutional Review Board (IRB) and was determined to be exempt from broad IRB approval, as this research project did not involve human subject research. |
| Optum EHR | New England Institutional Review Board (IRB) and was determined to be exempt from broad IRB approval, as this research project did not involve human subject research. |
| SIDIAP | The use of SIDIAP data base was approved by the SIDIAP Scientific Committee and the IDIAPJGol Clinical Research Ethics Committee. |
| VA | The use of VA data was reviewed by the Department of Veterans Affairs Central Institutional Review Board (IRB) and was determined to meet the criteria for exemption under Exemption Category 4(3) and approved the request for Waiver of HIPAA Authorization. The VA Privacy Office certified the release of aggregate analysis results for the meta-analysis. |

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