**Long-term use of secondary prevention medications for heart failure in Western Australia: a study protocol**

**Supplementary Tables**

**Supplementary Table 1:** ICD codes of diseases and procedures of relevance in the study

| Diseases | ICD-9 and ICD-9-CM | ICD-10-AM |
|---|---|---|
| **Diseases excluded from cohort** | | |
| Valvular heart disease | 394-398, 424 | I05-I09, I34-I39, Z95.2-4 |
| Dialysis diagnosis codes | V45.1, V56, 996.1, 996.73 | Z49, Z99.2, T82.4 |
| Dialysis procedure codes | 54.90, 39.27, 38.95, 39.42, 39.43, 8-853, 8-860 | 13112-00, 13104-00, 13109-00, 13110-00, 90353-00, 90351-00, 13106-00, 13109-01, 90352-00, 90353-01 |
| **Comorbidities** | | |
| Ischemic heart disease | 410-414 | I20-I25 |
| Hypertension | 401-405 | I10-I15 |
| Atrial Fibrillation | 427.31 | I48 |
| Diabetes mellitus | 250 | E10-E14 |
| Chronic obstructive pulmonary disease | 490-494, 496 | J40-J47 |
| Peripheral vascular disease | 440-442, 443.1, 443.9, 444, 447.1 | I70-I72, I73.1, I73.9, I74, I77.1 |
| Stroke | 430, 431, 433, 434, 436 | I60, I61, I63, I64 |
| Chronic kidney disease | 250.40-43, 405.01-02, 405.11-12, 405.91, 405.92, 580.0, 580.4, 580.89, 580.9, 581.9, 581.89, 582.0-2, 582.4, 582.81, 582.89, 583.0-2, 583.4, 583.6-7, 583.9, 583.89, 583.81, 587, 588.0-1, 588.8-9, 589.0-1, 589.9, 590.00-01, 590.80-81, 590.9, 590.2-3, 593.0-2, 593.6, 593.9, 593.81-82, 593.89, 599.7, 753.0, 753.2-4, 753.10-17, 753.19, 966.1, 966.81, V42, V56.0, V56.8 | E10.2, E11.2, E12.2, E13.2, E14.2, I15.0-1, N00-02, N04-08, N11-12, N14-16, N25-28, T82.4, T86.1, Q60-63, Z94.0, Z99.2, Z49 |
| Renal failure | 585.1, 585.9, 403.01, 403.11, 403.91, 404.02-03, 404.12-13, 404.92-93, 586, | I12.0, I13.1-2, N17-19 |

ICD-9, ICD-9-CM: International Classification of Diseases Ninth Revision, and the Clinical Modification (CM); ICD-10-AM: International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification.

**Supplementary Table 2**: Strengths and limitations of the common methods for measuring adherence and persistence from electronic pharmacy claims datasets

| Types of measurement | Description of calculations | Strengths | Limitations |
|---|---|---|---|
| Medication Possession Ratio (MPR) | Ratio of total days supply to days in study period | • Can be presented as categorical or continuous variable<br>• Ease of calculation and interpretation[1]<br>• Can be averaged across study patients to estimate the overall adherence in the cohort[2]<br>• Similar to PDC when estimating for a single drug[3] | • Can be confusing (eg. estimate can be >100% which is difficult to interpret)<br>• Period of under- or over-supply may be obscured[3]<br>• Switching of medications in same drug class will inflate MPR[4]<br>• Patients taking concurrent medications from within the same class during measurement period will inflate the estimate[4] |
| Proportion of Days Covered (PDC) | $\frac{Total\ days\ supply}{Number\ of\ days\ \ between\ the\ first\ fill\ of\ the\ medication\ during\ the\ measurement\ period\ and\ the\ end\ of\ the\ measurement\ period}$ | • Can create a time array to determine how many days in the denominator were covered by at least 1 drug[3]<br>• More conservative estimate when patient switches[3] medications within the same drug class<br>• Used widely in health research<br>• Value capped at 1 | • Does not permit carryover of excess medication supply from one interval to another[3]<br>• Ignores non-adherent time after the last refill[1] |
| Refill-sequence model | Patient has refilled a prescription within a predetermined number of days | • Widely used in health settings[5 6] | • May not consider refill behaviour across the observation period<br>• Once decided that drug has stopped, further refilling is no longer allowed<br>• Predetermined gap is hard to define |

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