**Temporal trends and inequalities in coronary angiography utilization in the management of non-ST-Elevation acute coronary syndromes in the U.S.**

**Short running title:** Use of coronary angiography in NSTEACS

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Supplementary table 1: List of international classification of disease, Ninth Edition, clinical modification (ICD-9-CM) and clinical classification software codes used for identifying additional comorbidities

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| --- | --- | --- |
| **Comorbidities** | **Source** | **Codes** |
| Dyslipidaemias | CCS | 53 |
| Coronary artery disease | ICD-9-CM | 414.00-414.07 |
| Family history of IHD | ICD-9-CM | V17.3 |
| Previous stroke or transient ischemic attack | ICD-9-CM | V12.54x |
| Previous CABG | ICD-9-CM | V45.81x |
| Previous PCI | ICD-9-CM | V45.82x |
| Cardiogenic shock | ICD-9-CM | 785.51 |
| Use of inotropic agents | ICD-9-CM | 00.17 |
| Use of inotropic assist device | ICD-9-CM | 376, 97.44 |
| Smoking | ICD-9-CM | V15.82, 305.1 |
| Dementia | ICD-9-CM | 290.xx,294.1x,294.2x,294.8,331.0,331.12,331.82,797 |

Supplementary Table 2: Deyo’s modification of Charlson’s co-morbidity index (CCI).

|  |  |  |
| --- | --- | --- |
| Reported ICD-9 codes | Condition | Charlson score |
| 412 | Previous myocardial infarction | 1 |
| 428 – 428.9 | Congestive heart failure | 1 |
| 433.9, 441 – 441.9, 785.4 V43.4 | Peripheral vascular disease | 1 |
| V12.54, 438.x | Previous cerebrovascular disease | 1 |
| 290 – 290.9 | Dementia | 1 |
| 490 – 496, 500 –505, 506.4 | Chronic pulmonary disease | 1 |
| 710.0, 710.1, 710.4, 714 – 714.2, 714.81, 725 | Rheumatologic disease | 1 |
| 531 – 534.9 | Peptic ulcer | 1 |
| 571.2, 571.5, 571.6, 571.4 –571.49 | Mild liver disease | 1 |
| 250 – 250.3, 250.7 | Diabetes | 1 |
| 250.4 – 250.6 | Diabetes with chronic complications | 2 |
| 344.1, 342 – 342.9 | Hemiplegia or paraplegia | 2 |
| 582 – 582.9, 583 – 583.7, 585, 586, 588 – 588.9 | Renal Disease | 2 |
| 140 – 172.9, 174 –195.8, 200 – 208.9 | Any malignancy including leukaemia and lymphoma | 2 |
| 572.2 – 572.8 | Moderate or severe liver disease | 3 |
| 196 – 199.1 | Metastatic solid tumour | 6 |
| 042 – 044.9 | AIDS | 6 |

Supplementary table 3: ICD-9-CM codes for post procedural complications

|  |  |
| --- | --- |
| **Post-procedural Complication** | **ICD-9-CM or CCS codes** |
| **Bleeding complication** |  |
| Gastrointestinal | CCS 153 |
| Unspecified haemorrhage | 459.0 |
| Retroperitoneal haemorrhage | 568.81, 998.1 |
| Intracranial haemorrhage | 430-432x |
| Post-op haemorrhage requiring transfusion | 99.0 (procedure) |
| Blood transfusion | V58.2 |
| **Vascular complications** |  |
| Vascular injury | 900-904, 998.2, 447, 868.04, 999.7 (diagnosis)  39.31, 39.41, 39.49, 39.52, 39.53, 39.56 - 39.59 39.79 (procedure) |
| **Cardiac complications** |  |
| Iatrogenic cardiac | 997.1 |
| Pericardial comp | 423.0, 423.3 (diagnosis) 47.0 (procedure) |
| Requiring CABG | 36.1x, 36.2, 36.31, 36.32, 36.9x |

Supplementary table 4**:** Propensity score matching analysis reporting average treatment effects (ATE) comparing coronary angiography versus no coronary angiography patients.

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| --- | --- | --- | --- | --- |
| CA vs No CA | Coefficient | 95% confidence interval | | P value |
| In hospital death | -0.0346111 | -0.0361011 | -0.0331211 | <0.001 |
| Major cardiac complications | 0.0098089 | 0.0087383 | 0.0108796 | <0.001 |
| Major bleeding | 0.0048243 | 0.002299 | 0.0073495 | <0.001 |
| Vascular complications | 0.0062807 | 0.0053833 | 0.0071781 | <0.001 |

Supplementary figure 1: Proportions of patients receiving coronary angiography according to their gender category from 2004-2014

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Supplementary figure 2: Subgroup analysis comparing association between use of coronary angiography and in-hospital mortality patients age ≧ 65yrs and age < 65yrs, White race and non-white race, hospital and CCI ≧ 3 or <3 and large, medium and small size hospitals

