**Appendix:**

**Appendix Table 1: Reference 2 x 2 table for computing validity measures**

|  | ARIC Present | ARIC Absent | Row Total |
|---|---|---|---|
| ICD9 Present | a | b | $R_1$ |
| ICD9 Absent | c | d | $R_2$ |
| Column Total | $C_1$ | $C_2$ | N |

Sensitivity ($a/C_1$), Specificity ($1 - [b/C_2]$), Positive Predictive Value ($a/R_1$)

**Appendix Table 2: Subset of frequent codes in the first and second discharge code positions among records with a definite or probable MI according to ARIC protocols**

| Code | Position 1 | | | Position 2 | | |
|---|---|---|---|---|---|---|
|  | Female | Male | Overall | Female | Male | Overall |
| 410 | 241 (44.1%) | 313 (52.8%) | 554 (48.6%) | 54 ( 9.9%) | 44 ( 7.4%) | 98 ( 8.6%) |
| 414 | 46 ( 8.4%) | 69 (11.6%) | 115 (10.1%) | 40 ( 7.4%) | 59 ( 9.9%) | 99 ( 8.7%) |
| 428 | 43 ( 7.9%) | 31 ( 5.2%) | 74 ( 6.5%) | 65 (11.9%) | 68 (11.5%) | 133 (11.7%) |
| 427 | 25 ( 4.6%) | 24 ( 4.0%) | 49 ( 4.3%) | 32 ( 5.9%) | 42 ( 7.1%) | 74 ( 6.5%) |
| 401 | N/A | N/A | N/A | 11 ( 2.0%) | 12 ( 2.0%) | 23 ( 2.0%) |
| Other | 191 (34.9%) | 156 (26.3%) | 347 (30.4%) | 342 (62.9%) | 368 (62.1%) | 710 (62.4%) |

ICD Codes: 410 – Acute myocardial infarction, 414 – Other forms of chronic ischemic heart disease, 428 – Heart Failure, 427 – Cardiac dysrhythmias, 401 – Essential hypertension

**Appendix Table 3: Sex and Age group stratified sensitivity and specificity of Medicare hospitalization records containing ICD9 discharge code 410 (excluding 410.x2), 411.1, or 413 and cardiac related procedure codes to identify an MI when compared to the ARIC classification of definite or probable MI**

| | Sensitivity (95% CI) | Specificity (95% CI) | PPV (95% CI) | Kappa (95%CI) |
|---|---|---|---|---|
| **Sex** | | | | |
| **Female** | | | | |
| 410 or 411.1[+] or 413[+] (<=5) | 0.66 (0.61, 0.70) | 0.975 (0.972, 0.978) | 0.50 (0.46, 0.54) | 0.55 ( 0.52, 0.58) |
| 410 or 411.1[+] (<=5) | 0.66 (0.61, 0.70) | 0.979 (0.976, 0.981) | 0.54 (0.50, 0.58) | 0.58 ( 0.54, 0.61) |
| 410 or 411.1[+] or 413[+] (<= 3) | 0.63 (0.58, 0.67) | 0.978 (0.975, 0.981) | 0.53 (0.49, 0.57) | 0.56 ( 0.52, 0.59) |
| 410 or 411.1[+] (<= 3) | 0.63 (0.58, 0.67) | 0.981 (0.978, 0.984) | 0.56 (0.52, 0.60) | 0.57 ( 0.54, 0.61) |
| 410 (Any) | 0.61 (0.57, 0.66) | 0.988 (0.986, 0.990) | 0.67 (0.63, 0.71) | 0.63 ( 0.59, 0.66) |
| 410 (<=5) | 0.61 (0.56, 0.65) | 0.989 (0.987, 0.990) | 0.67 (0.63, 0.72) | 0.63 ( 0.59, 0.66) |
| **Male** | | | | |
| 410 or 411.1[+] or 413[+] (<=5) | 0.71 (0.67, 0.75) | 0.954 (0.949, 0.959) | 0.47 (0.43, 0.51) | 0.53 ( 0.50, 0.57) |
| 410 or 411.1[+] (<=5) | 0.70 (0.66, 0.74) | 0.961 (0.956, 0.965) | 0.50 (0.46, 0.55) | 0.56 ( 0.53, 0.59) |
| 410 or 411.1[+] or 413[+] (<= 3) | 0.68 (0.63, 0.72) | 0.959 (0.954, 0.963) | 0.49 (0.44, 0.53) | 0.54 ( 0.50, 0.57) |
| 410 or 411.1[+] (<= 3) | 0.67 (0.63, 0.71) | 0.964 (0.960, 0.968) | 0.52 (0.47, 0.56) | 0.56 ( 0.52, 0.59) |
| 410 (Any) | 0.65 (0.60, 0.69) | 0.982 (0.979, 0.985) | 0.67 (0.63, 0.71) | 0.64 ( 0.61, 0.67) |
| 410 (<=5) | 0.64 (0.59, 0.68) | 0.983 (0.980, 0.986) | 0.68 (0.64, 0.73) | 0.64 ( 0.61, 0.67) |
| **Age Group** | | | | |
| **Aged < 75 yrs.** | | | | |
| 410 or 411.1[+] or 413[+] (<=5) | 0.70 (0.66, 0.74) | 0.962 (0.958, 0.967) | 0.46 (0.42, 0.50) | 0.53 ( 0.50, 0.56) |
| 410 or 411.1[+] (<=5) | 0.69 (0.65, 0.74) | 0.969 (0.965, 0.972) | 0.50 (0.46, 0.55) | 0.56 ( 0.53, 0.59) |
| 410 or 411.1[+] or 413[+] (<= 3) | 0.67 (0.62, 0.71) | 0.966 (0.962, 0.970) | 0.47 (0.43, 0.51) | 0.53 ( 0.49, 0.56) |
| 410 or 411.1[+] (<= 3) | 0.66 (0.61, 0.71) | 0.971 (0.967, 0.974) | 0.51 (0.46, 0.55) | 0.55 ( 0.52, 0.59) |
| 410 (Any) | 0.63 (0.59, 0.68) | 0.986 (0.984, 0.988) | 0.68 (0.63, 0.72) | 0.64 ( 0.61, 0.68) |
| 410 (<=5) | 0.63 (0.59, 0.68) | 0.987 (0.985, 0.989) | 0.69 (0.65, 0.73) | 0.65 ( 0.61, 0.68) |

| | Sensitivity (95% CI) | Specificity (95% CI) | PPV (95% CI) | Kappa (95%CI) |
|---|---|---|---|---|
| **Aged >= 75 yrs.** | | | | |
| 410 or 411.1$^+$ or 413$^+$ (<=5) | 0.67 (0.63, 0.71) | 0.970 (0.966, 0.973) | 0.51 (0.47, 0.55) | 0.56 ( 0.52, 0.59) |
| 410 or 411.1$^+$ (<=5) | 0.66 (0.62, 0.71) | 0.973 (0.970, 0.976) | 0.54 (0.50, 0.58) | 0.58 ( 0.54, 0.61) |
| 410 or 411.1$^+$ or 413$^+$ (<= 3) | 0.64 (0.60, 0.68) | 0.974 (0.971, 0.977) | 0.54 (0.50, 0.58) | 0.57 ( 0.53, 0.60) |
| 410 or 411.1$^+$ (<= 3) | 0.64 (0.60, 0.68) | 0.977 (0.974, 0.980) | 0.57 (0.53, 0.61) | 0.58 ( 0.55, 0.61) |
| 410 (Any) | 0.63 (0.58, 0.67) | 0.985 (0.982, 0.987) | 0.66 (0.62, 0.70) | 0.63 ( 0.59, 0.66) |
| 410 (<=5) | 0.62 (0.57, 0.66) | 0.985 (0.983, 0.988) | 0.67 (0.63, 0.71) | 0.63 ( 0.59, 0.66) |

Note: Discharge code positions are in parentheses. Codes 411.1$^+$ and 413$^+$ indicate that angioplasty procedure codes (00.66, 36.0, 36.1, 88.5, or 37.2) were included on the same record as discharge codes 411.1 or 413 respectively

ICD Codes: 410 – Acute myocardial infarction, 411 - Other acute and subacute forms of ischemic heart disease, 413 – Angina Pectoris