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┌─────────────────────────────┐      ┌─────────────────────────────┐
│      EMMACE 3 records       │      │      EMMACE 4 records       │
│                             │      │                             │
│ 1st November 2011 to 17th   │      │ October 2013 to 24th June   │
│        September            │      │          2015               │
│          2013               │      │        N=9343               │
└─────────────────────────────┘      └─────────────────────────────┘
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EMMACE 3 records

1st November 2011 to 17th September

2013

EMMACE 4 records

October 2013 to 24th June 2015

N=9343

Total AMI records

N=16780

Removal of Not STEMI or NSTEMI

N=4250 (25.3%)

NSTEMI and STEMI

N=12530

Analytical Cohort

N=9566

Figure S1: Number of patients who enrolled in EMMACE 3 and 4.

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Table S1: latent class analysis model selection goodness of fit statistics

	AIC	ssBIC	BLRT p value	Entropy
1 class	39085.29	39113.11		
2 classes	38037	38096.65	<0.001	0.49
3 classes	37989.26	38080.67	<0.001	0.54
4 classes	37988.43	38111.65	0.19	0.70
5 classes	37990.24	38145.24	0.39	0.74

Table S2: Proportions of latent class based on their most likely latent class membership

Final class counts and proportions for the latent class based on their most likely latent class membership	Average Latent Class Probabilities for Most Likely Latent Class Membership (Row) by Latent Class (Column)
Latent Classes 1 591 0.06538 2 4301 0.47583 3 4147 0.45879	1 2 3 1 **0.810** 0.183 0.007 2 0.110 **0.739** 0.150 3 0.006 0.184 **0.810**

Table S3: Class conditional probabilities of responses to the 7 comorbidities

Item	Class1	Class 2	Class 3
PVD	0.14	0.04	0.008
CVSD	0.15	0.07	0.002
COPD	0.22	0.15	0.09
CRF	0.22	0.02	0.002
Heart failure	0.21	0.00	0.002
Diabetes	0.53	0.24	0.04
Hypertension	0.68	0.67	0.16

Note: CRF, Chronic Renal failure; PVD, Peripheral Vascular Disease; COPD, Chronic Obstructive Pulmonary Disease; Cerebrovascular disease CVSD.
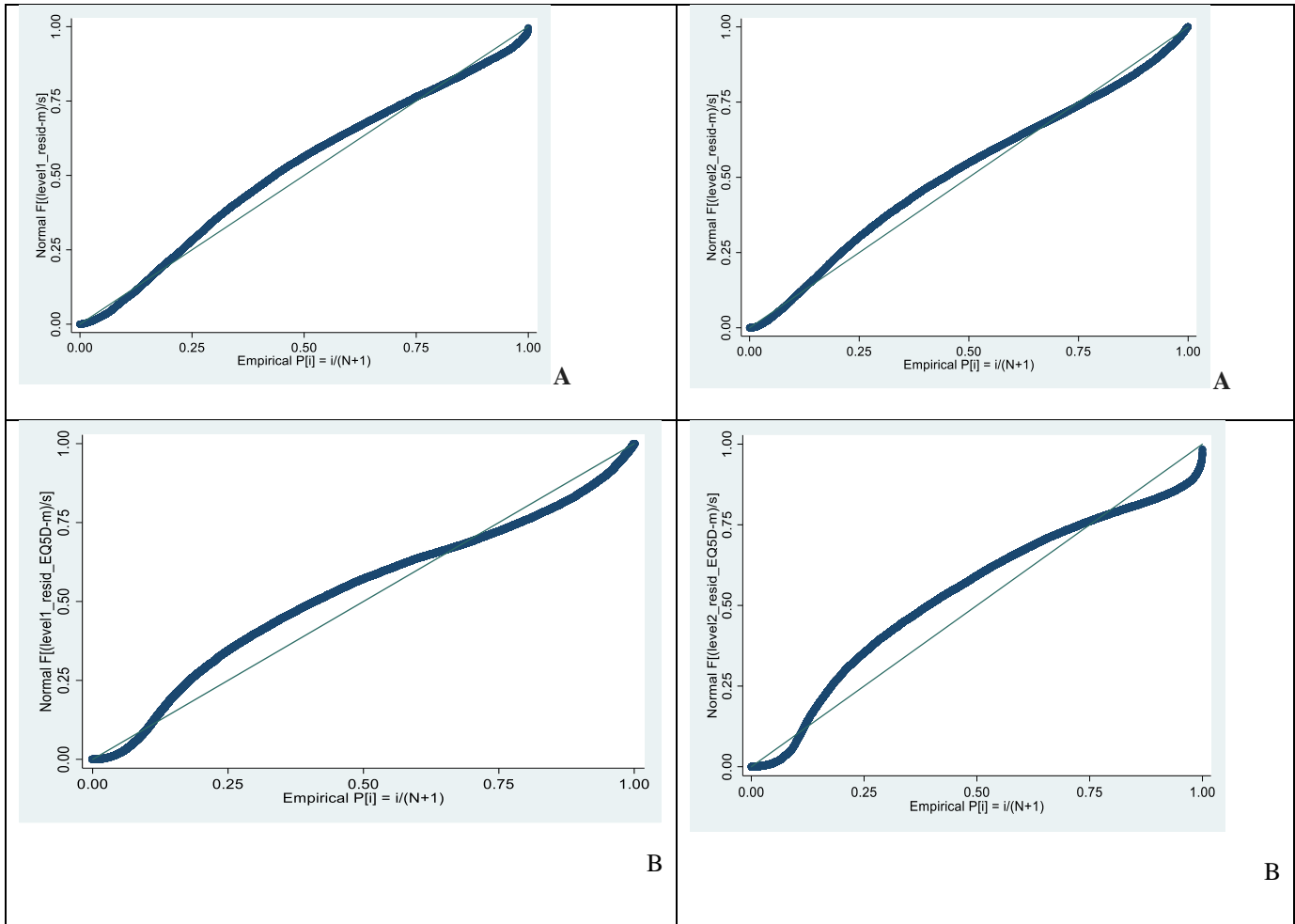
Figure S2: **Normal probability plots for level 1 and level 2 residuals for (A) EQVAS and (B) EQ5D models.**

Table S4: Comparison of baseline characteristics between respondent and non-respondents at 12 months

Variable	Respondents n=5047(52.8%)	Non respondents n=4519(47.2%)	Difference (95% CI)
Female, n (%)	1237(24.9)	1160(25.3)	-0.004(-0.02 to 0.01)
Age, mean(SD), year	65.9(10.8)	62.1(12.7)	3.89(3.42 to 4.37)
STEMI, n (%)	1965(39.5)	1943(42.4)	-0.03(-0.05 to -0.01)
NSTEMI, n (%)	3014(60.5)	2644(57.6)	0.03(0.01 to 0.05)
White ethnicity, n (%)	4251(85.4)	3885(84.7)	0.007(-0.007 to 0.02)
IMD, mean (SD)	21.29(14.8)	25.72(16.6)	-4.43(-5.39 to -3.48)
Previous angina, n (%)	938(18.8)	854(18.6)	0.002(-0.01 to 0.02)
Diabetes, n (%)	749(15.0)	965(21.0)	-0.06(-0.07 to -0.04)
Hypertension, n (%)	2174(43.7)	1904(41.5)	0.02(0.002 to 0.04)
Heart failure, n (%)	88(1.8)	124(2.7)	-0.01(-0.01 to -0.003)
PVD, n (%)	150(3.0)	167(3.6)	-0.01(-0.01 to 0.001)
CVSD, n (%)	202(4.1)	226(4.9)	-0.01(-0.02 to -0.001)
CRF, n (%)	136(2.7)	153(3.3)	-0.01(-0.01 to 0.001)
COPD, n (%)	574(11.5)	592(12.9)	-0.01(-0.03 to -0.001)
Ex/current smoker, n (%)	3014(60.5)	3234(70.5)	-0.1(-0.12 to -0.08)
Previous AMI, n (%)	733(14.7)	789(17.2)	-0.02(-0.04 to -0.01)
Previous PCI, n (%)	434(8.7)	465(10.1)	-0.01(-0.02 to -0.002)
CABG surgery, n (%)	333(6.7)	10(6.8)	-0.001(-0.001 to 0.01)
Baseline EQ-5D, mean(SD)	0.74(0.3)	0.70(0.3)	0.04(0.03 to 0.06)
Baseline EQ-VAS	64.5(20.4)	62.1(21.2)	2.37(1.52 to 3.22)

Note: IMD indicates Index of Multiple Deprivation; CABG, coronary artery bypass grafting; PCI, Percutaneous Coronary Intervention; AMI, Acute Myocardial Infarction; CRF, Chronic Renal failure; PVD, Peripheral Vascular Disease; COPD, Chronic Obstructive Pulmonary Disease; Cerebrovascular disease CVSD; Body Mass Index (BMI); ST-elevation myocardial infarction STEMI, non ST-elevation myocardial infarction NSTEMI.

Table S5: Adjusted parameter estimates from multilevel modelling of EQ-5D scores and multi-morbidity classes, regression coefficient and 95% confidence intervals

Variable	Regression coefficient (95% CI)	P value
Intercept	0.59(0.48 to 0.70)	
Month, Baseline (ref)		
1 month	0.01(0.001 to 0.01)	0.02
6 months	0.03(0.02 to 0.04)	<0.001*
12 months	0.04(0.03 to 0.05)	<0.001*
Multimorbidity classes Mild(ref)		
Moderate	-0.05(-0.06 to -0.04)	<0.001*
Severe	-0.16(-0.18 to -0.13)	<0.001*
Diagnosis(STEMI) ref		
Diagnosis (NSTEMI)	-0.003(-0.02 to 0.01)	0.65
Age	0.001(0.001 to 0.002)	<0.001*
Women	-0.07(-0.08 to -0.06)	<0.001*
Ethnicity white	0.05(0.01 to 0.08)	0.01
Ex/current smoking status	-0.03(-0.04 to -0.02)	<0.001*
Treatments		
Previous PCI	-0.03 (-0.05 to -0.02)	<0.001*
Previous CABG surgery	-0.03 (-0.06 to -0.01)	0.003*

Adjusting for age, sex, ethnicity (white versus other) smoking status (never vs ex or current), angina, diagnosis (STEMI or NSTEMI), revascularisation (percutaneous coronary intervention [PCI] vs. no PCI; coronary artery bypass graft [CABG] surgery vs no CABG surgery), medications (B-Blockers, statins, ACE, Aspirin), cardiac rehabilitation (yes/no). Note: CABG, coronary artery bypass grafting; PCI, Percutaneous Coronary Intervention; MI, Myocardial Infarction, ST-elevation myocardial infarction STEMI, non ST-elevation myocardial infarction NSTEMI. *Significant after Hochberg correction using a false discovery rate of 0.05