

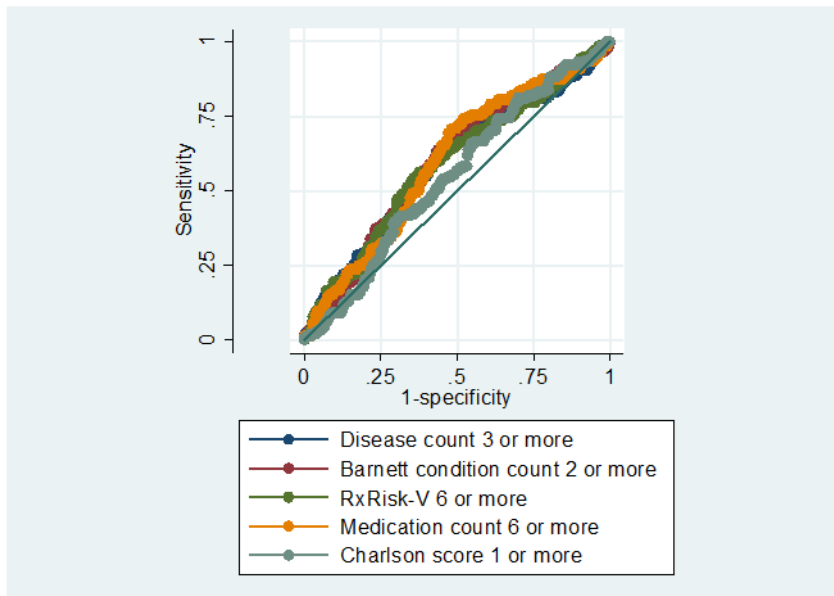
**Appendix 1: Ambulatory care sensitive conditions as defined by the Australian Victoria State Health Department**

<b>Acute conditions</b>	<b>Chronic conditions</b>	<b>Other and vaccine-preventable conditions</b>
Cellulitis	Angina	Influenza
Dehydration	Asthma	Pneumonia
Dental conditions	COPD	Other vaccine-preventable
Ear, nose and throat infections	Congestive heart failure	
Gangrene	Convulsions and epilepsy	
Gastroenteritis	Diabetes complications	
Nutritional deficiencies	Hypertension	
Pelvic inflammatory disease	Iron deficiency anaemia	
Perforated/bleeding ulcer		
Pyelonephritis		

**Appendix 2: C-statistics (95% CI) for the outcome of  $\geq 1$  emergency admission (n=862) by different cut-points of the multimorbidity measures**

Count cut-point	RxRisk-V c-statistic (95% CI)	Number of medication classes c-statistic (95% CI)	Disease count c-statistic (95% CI)	Barnett conditions count c-statistic (95% CI)	Charlson index c-statistic (95% CI)
<b>0 vs. <math>\geq 1</math></b>	0.50 (0.50, 0.51)	0.52 (0.51, 0.53)	0.52 (0.50, 0.53)	0.54 (0.52, 0.57)	0.58 (0.56, 0.60)
<b>0-1 vs. <math>\geq 2</math></b>	0.53 (0.52, 0.55)	0.54 (0.53, 0.55)	0.55 (0.53, 0.58)	0.60 (0.58, 0.62)	0.58 (0.56, 0.61)
<b>0-2 vs. <math>\geq 3</math></b>	0.57 (0.54, 0.59)	0.56 (0.54, 0.58)	0.59 (0.57, 0.63)	0.60 (0.57, 0.62)	0.57 (0.54, 0.60)
<b>0-3 vs. <math>\geq 4</math></b>	0.59 (0.56, 0.61)	0.56 (0.54, 0.59)	0.59 (0.55, 0.62)	0.57 (0.53, 0.59)	0.57 (0.55, 0.59)
<b>0-4 vs. <math>\geq 5</math></b>	0.60 (0.57, 0.63)	0.59 (0.56, 0.62)	0.58 (0.55, 0.61)	0.56 (0.52, 0.58)	0.54 (0.53, 0.55)
<b>0-5 vs. <math>\geq 6</math></b>	0.61 (0.58, 0.64)	0.62 (0.58, 0.65)	0.57 (0.54, 0.60)	0.53 (0.51, 0.55)	0.52 (0.51, 0.53)
<b>0-6 vs. <math>\geq 7</math></b>	0.61 (0.57, 0.64)	0.60 (0.56, 0.63)			
<b>0-7 vs. <math>\geq 8</math></b>	0.59 (0.54, 0.63)	0.60 (0.57, 0.63)			
<b>0-8 vs. <math>\geq 9</math></b>	0.57 (0.53, 0.59)	0.60 (0.57, 0.62)			
<b>0-9 vs. <math>\geq 10</math></b>	0.53 (0.51, 0.55)	0.57 (0.54, 0.60)			

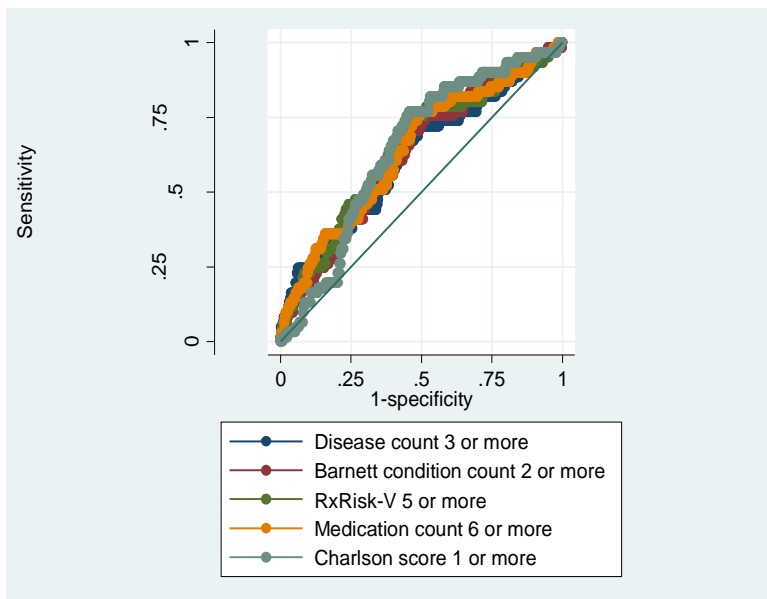
**Appendix 3: Comparison of five multimorbidity measures, adjusted for age, gender and deprivation, at optimal cut-points for outcome of  $\geq 1$  emergency admission: receiver operating curve plot**



**Appendix 4: Different cut-points of multimorbidity measures with c-statistics (95% CI) for the outcome of  $\geq 1$  ACS emergency admission (n=862)**

Count cut-point	RxRisk-V	Number of medications	of Disease count	Barnett conditions count	Charlson index	
	c-statistic (95% CI)				c-statistic (95% CI)	c-statistic (95% CI)
<b>0 vs. <math>\geq 1</math></b>	0.51 (0.51, 0.51)	0.52 (0.52, 0.53)	0.53 (0.51, 0.54)	0.54 (0.51, 0.57)	0.63 (0.60, 0.66)	
<b>0-1 vs. <math>\geq 2</math></b>	0.54 (0.52, 0.55)	0.55 (0.54, 0.56)	0.55 (0.52, 0.59)	0.61 (0.56, 0.65)	0.63 (0.60, 0.66)	
<b>0-2 vs. <math>\geq 3</math></b>	0.58 (0.55, 0.60)	0.57 (0.53, 0.60)	0.59 (0.54, 0.64)	0.60 (0.55, 0.65)	0.57 (0.53, 0.61)	
<b>0-3 vs. <math>\geq 4</math></b>	0.61 (0.57, 0.64)	0.58 (0.54, 0.62)	0.58 (0.53, 0.64)	0.60 (0.54, 0.65)	0.55 (0.52, 0.59)	
<b>0-4 vs. <math>\geq 5</math></b>	0.63 (0.58, 0.67)	0.61 (0.56, 0.65)	0.59 (0.55, 0.64)	0.56 (0.52, 0.61)	0.54 (0.51, 0.57)	
<b>0-5 vs. <math>\geq 6</math></b>	0.62 (0.57, 0.67)	0.63 (0.58, 0.68)	0.57 (0.54, 0.62)	0.53 (0.51, 0.54)	0.52 (0.50, 0.54)	
<b>0-6 vs. <math>\geq 7</math></b>	0.62 (0.57, 0.68)	0.62 (0.56, 0.67)				
<b>0-7 vs. <math>\geq 8</math></b>	0.58 (0.52, 0.64)	0.63 (0.58, 0.69)				
<b>0-8 vs. <math>\geq 9</math></b>	0.58 (0.53, 0.63)	0.63 (0.57, 0.68)				
<b>0-9 vs. <math>\geq 10</math></b>	0.53 (0.50, 0.57)	0.58 (0.52, 0.64)				

**Appendix 5: Comparison of five multimorbidity measures, adjusted for age, gender and deprivation, for the outcome of ACS emergency admission: receiver operating curve plot**



## Appendix 6: Comparison of follow-up postal questionnaire respondents and non-respondents

	Questionnaire respondents (n=673)	Questionnaire non-respondents (n=133)	Difference between the two groups
	Median (IQR)	Median (IQR)	p-value
<b>Age</b>	76 (73, 80)	78 (73, 82)	0.02
<b>Deprivation</b>	1.36 (-0.64, 2.88)	2.16 (-0.20, 3.39)	0.04
<b>Number of medication classes</b>	5 (3, 7)	6 (4, 9)	0.001
<b>Gender</b>	Number (%)	Number (%)	
Male	318 (47)	57 (40)	
Female	355 (53)	87 (60)	0.16
<b>Education*</b>			
Basic education	397 (59)	101 (71)	
Upper/post-secondary	272 (41)	41 (29)	0.01
<b>Social class</b>			
Unskilled	151 (22)	47 (33)	
Skilled	522 (78)	97 (67)	0.01
<b>Charlson comorbidity weights<sup>§</sup></b>			
0	286 (43)	49 (34)	
≥1	387 (57)	95 (66)	0.06

\*Education was missing for n=6 (baseline). <sup>§</sup>Charlson comorbidity was missing for n=2 (baseline).

**Appendix 7: Different cut-points of multimorbidity measures with c-statistics (95% CI) for the outcome of functional decline (n=666)**

Count point	cut-	RxRisk-V	Number medications	of	Disease count	Barnett conditions count	Charlson index
		c-statistic (95% CI)	c-statistic (95% CI)		c-statistic (95% CI)	c-statistic (95% CI)	c-statistic (95% CI)
<b>0 vs. ≥1</b>		0.51 (0.50, 0.51)	0.51 (0.49, 0.53)		0.51 (0.47, 0.55)	0.51 (0.48, 0.55)	0.57 (0.52, 0.62)
<b>0-1 vs. ≥2</b>		0.54 (0.53, 0.55)	0.53 (0.50, 0.55)		0.55 (0.51, 0.59)	0.55 (0.51, 0.59)	0.57 (0.50, 0.64)
<b>0-2 vs. ≥3</b>		0.54 (0.50, 0.57)	0.53 (0.48, 0.58)		0.56 (0.51, 0.62)	0.57 (0.52, 0.62)	0.59 (0.52, 0.66)
<b>0-3 vs. ≥4</b>		0.55 (0.50, 0.60)	0.55 (0.52, 0.59)		0.55 (0.50, 0.60)	0.53 (0.49, 0.58)	0.53 (0.49, 0.56)
<b>0-4 vs. ≥5</b>		0.61 (0.56, 0.65)	0.58 (0.54, 0.62)		0.56 (0.51, 0.62)	0.54 (0.51, 0.57)	0.51 (0.47, 0.54)
<b>0-5 vs. ≥6</b>		0.60 (0.54, 0.67)	0.57 (0.51, 0.62)		0.52 (0.47, 0.56)	0.52 (0.49, 0.55)	0.51 (0.49, 0.53)
<b>0-6 vs. ≥7</b>		0.56 (0.50, 0.62)	0.59 (0.50, 0.67)				
<b>0-7 vs. ≥8</b>		0.55 (0.48, 0.61)	0.59 (0.51, 0.66)				
<b>0-8 vs. ≥9</b>		0.55 (0.50, 0.60)	0.56 (0.50, 0.63)				
<b>0-9 vs. ≥10</b>		0.51 (0.47, 0.55)	0.54 (0.49, 0.60)				

**Appendix 8: Comparison of five multimorbidity measures, adjusted for age, gender and deprivation, at optimal cut-points for the outcome of functional decline: receiver operating curve plot**

