ONLINE SUPPLEMENT

Online Table 1 Characteristics of first admission ECG and serial changes on admission ECGs

Initial ECG	**N**	**242**
	Conduction defects	
	First degree block (63)	1 (0.4%)
	Incomplete RBBB (73)	10 (4%)
	Complete RBBB (721)	5 (2%)
	Incomplete LBBB (76)	8 (3%)
	Complete LBBB (711)	4 (2%)
	Arrhythmias	
	Sinus tachycardia (87)	112 (46%)
	Premature atrial/junctional beats (811,813)	17 (7%)
	Premature ventricular beats (812, 813)	6 (2%)
	Atrial fibrillation (831 or 833)	14 (6%)
	Wandering atrial pacemaker (814)	1 (0.4%)
	Other	
	P-pulmonale (93)	20 (8%)
	Low QRS amplitude (91)	3 (1%)
	Q-waves	
	Diagnostic Q waves (1-1-1 through 1-2-5 plus 1-2-7)	34 (14%)
	Equivocal Q waves (1-2-8 in the absence of a 7-1-1 or 7-3 or (any 1-3-))	20 (8%)
	ST segment and T waves	
	ST elevation with T-wave inversion (9-2 PLUS (T-wave inversion 5-1 or 5-2 in the absence of 7-2-1 or 7-4))	2 (0.8%)
	ST depression (4-1-x or 4-2 or 4-3 in the absence of 7-2-1 or 7-4), or 1-3-x.)	32 (13%)

	T wave inversion	37 (15%)
	T waves inverted or flat (code 5-1 or 5-2 or 5-3 in the absence of 7-2-1 or 7-4)	58 (24%)
	ST elevation without T wave inversion (code 9-2)	7 (3%)
	Cardiac Injury Infarction Score, mean (SD)	16 (10)
Serial change	N	203
	Major Q-waves	3 (1.5%)
	T-wave inversion/flattening	65 (32%)
	ST depression	19 (9%)
	ST elevation	13 (6%)
	Cardiac Injury Infarction Score, mean (SD)	-1 (9)

Online Table 2 Chest pain and ECG changes in patients with raised troponin

Troponin	Site	ECG Summary	Chest pain	ACS
3x cut-off	Edinburgh	New diagnostic Q waves, and serial T wave changes	Central, sharp	Yes
3x cut-off	Glasgow	Serial ST depression	Tight, lasting less than 2 min, exertional, radiating to arm/jaw	Yes
3x cut-off	Edinburgh	Serial ST depression	None	No
3x cut-off	Glasgow	Diagnostic Q waves and serial T wave changes	None	No
3x cut-off	Monklands	Diagnostic Q waves and serial T wave changes	None	No
3x cut-off	Glasgow	Serial T wave changes	Upper chest pain, worse on movement, relieved partly by oxygen	Yes
3x cut-off	Monklands	Serial T wave changes	None	Yes

Troponin	Site	ECG Summary	Chest pain	ACS
3x cut-off	Edinburgh	Diagnostic Q waves, and inverted T waves on first ECG	None	No
3x cut-off	Ayrshire	Diagnostic Q waves	Central	No
3x cut-off	Edinburgh	No ischaemic features	Central, sharp, lasted > 12 hours, exertional	No
3x cut-off	Edinburgh	No ischaemic features	None	No
3x cut-off	Glasgow	No ischaemic features	Central, tight, exertional	No
3x cut-off	Monklands	No ischaemic features	Central, tight	No
3x cut-off	Monklands	No ischaemic features	Central, tight, exertional, radiating to arm/jaw	No
3x cut-off	Edinburgh	No ischaemic features, no admission ECG	Sharp, exertional, relieved partly by oxygen	No
2x cut-off	Edinburgh	Diagnostic Q waves and serial T wave changes	Central, lasting less than 2 minutes	Yes
2x cut-off	Edinburgh	Diagnostic Q waves and serial T wave changes	Tight, pleuritic	Yes
2x cut-off	Glasgow	Serial ST elevation, without serial T wave changes	None	No
2x cut-off	Glasgow	Serial T wave changes	None	No
2x cut-off	Monklands	Diagnostic Q waves	None	No
2x cut-off	Monklands	No ischaemic features	Central, tight, relieved by bronchodilators/oxygen	No
2x cut-off	Monklands	No ischaemic features	None	No
1x cut-off	Edinburgh	Inverted T waves, no repeat ECG	None	No

Troponin	Site	ECG Summary	Chest pain	ACS
1x cut-off	Glasgow	No ischaemic features	Tight	No

Glasgow – Glasgow Royal Infirmary, Edinburgh – Royal Infirmary of Edinburgh, Monklands – Monklands Hospital, Ayrshire – Crosshouse Hospital

Online Table 3 Comparison of patient characteristics with British Thoracic Society Audit 2008

	Case series	**BTS Audit**
Age, mean, years	69	73
Male sex, %	45%	50%
Length stay, median, days	5	5
Height, median, m	1.62	1.64
FEV1% predicted, median	43%	38%
Current smoker, %	48%	33%
MRC 4-5 prior admission, %	65%	67%
Systemic steroids within 24h, %	90%	86%
Antibiotics within 24h, %	68%	81%
Acidotic on admission, %	21%	20%
NIV, %	6%	11%
Sputum vol increased, %	54%	66%
Sputum purulence increased, %	58%	61%
Albumin g/dl, median	39	39
Creatinine, µmol /L, median	83	83
Ischaemic heart disease, %	32%	25%
Stroke, %	10%	6%
Diabetes, %	12%	12%

Online Table 4 Comparison of patient characteristics in those meeting and not meeting the Universal definition for Myocardial Infarction

	Do not meet criteria for MI	Meet criteria for MI	P-value
N	222	20	
Stable characteristics			
Age, years, mean (SD)	69 (9)	70 (10)	0.62
Male gender, n (%)	98 (45%)	10 (50%)	0.64
Height, metres, mean (SD)	1.62 (0.10)	1.63 (0.12)	0.74
Current smoker, n (%)	107 (48%)	8 (40%)	0.64
Pack years, median (IQR)	50 (33-65)	47 (35-53)	
FEV1, litres, median (IQR)	0.85 (0.68-1.18)	1.25 (0.78-1.66)	0.09
FVC, litres, median (IQR)	2.04 (1.62-2.54)	2.84 (1.67-3.49)	0.12
FEV1/FVC ratio, median (IQR)	43 (34-54)	50 (38-55)	0.25
Severity of obstruction by GOLD criteria, n (%)			
Mild	8 (5%)	2 (18%)	0.07
Moderate	56 (32%)	3 (27%)	
Severe	61 (35%)	4 (36%)	
Very severe	50 (29%)	2 (18%)	
Long-term oxygen therapy, n (%)	39 (18)	1 (5%)	0.21
Home nebulisers, n (%)	109 (49%)	10 (50%)	p>0.99
Long-acting beta agonists, n (%)	162 (73%)	10 (50%)	0.04
Long-acting anticholinergics, n (%)	114 (51%)	6 (30%)	0.10
Methylxanthines, n (%)	27 (12%)	7 (35%)	0.01

Inhaled corticosteroid, n (%)	180 (81%)	15 (75%)	0.55
Long term oral steroids, n (%)	6 (3%)	0	>0.99
Exacerbation characteristics			
Heart rate, mean (SD)	101 (20)	111 (24)	0.10
Respiratory rate, mean (SD)	24 (5)	25 (5)	0.42
BP systolic/diastolic, mean (SD)	134 (25) / 72 (15)	139 (27) / 83 (17)	0.47/ 0.01
Arterial blood gases, mean (SD)			
Hydrogen (mmHg)	40 (7)	46 (14)	0.15
PaO2 (kPa)	10 (4)	14 (7)	0.07
PaCO2 (kPa)	6 (2)	7 (3)	0.44
Exacerbation (infection) type, n (%)			
Anthonisen type 1	101 (45%)	9 (45%)	0.47
Anthonisen type 2	49 (22%)	2 (10%)	
Anthonisen type 3	59 (27%)	8 (40%)	
Leukocytosis (WCC >11) x 10^9/L	101 (46%)	12 (60%)	0.25
Raised C-reactive protein (>6 mg/dl), n (%)	145 (75%)	13 (77%)	0.97
Haemoglobin, g/dl, mean (SD)	138 (18)	138 (23)	0.87
Prescribed antibiotics, n (%)	152 (68%)	12 (60%)	0.46
Prescribed oral prednisolone, n (%)	198 (89%)	19 (95%)	0.70
Treated with non-invasive ventilation (NIV)	13 (6%)	2 (10%)	0.36

Online Table 5 Acute treatment characteristics of patients by chest pain and meeting Universal definition of MI

	Universal definition of MI		Chest pain	
	Not met	Met	No	Yes
Antibiotics	152 (68%)	12 (60%)	73 (62%)	91 (74%)
Nebulised beta2-agonist	161 (73%)	13 (7%)	89 (75%)	85 (69%)
Nebulised anticholinergic	139 (63%)	13 (65%)	78 (66%)	74 (60%)
Loop diuretic	6 (3%)	2 (10%)	5 (4%)	3 (2%)
Prophylactic dose low molecular weight heparin	116 (52%)	13 (65%)	60 (51%)	69 (56%)
Oral prednisolone therapy	198 (89%)	19 (95%)	108 (92%)	109 (88%)