

Supplemental Online Content

Fanaroff AC, Califf RM, Windecker S, Smith SC Jr, Lopes RD. Levels of evidence supporting American College of Cardiology/American Heart Association and European Society of Cardiology Guidelines, 2008-2018. *JAMA*. doi:10.1001/jama.2019.1122

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This supplemental material has been provided by the authors to give readers additional information about their work.

eTable 1. Levels of Evidence by guideline and Category of Recommendation (ACC/AHA Guidelines)

Guideline (N recommendations)	Year	Overall			Class I			Class II			Class III		
		A	B	C	A	B	C	A	B	C	A	B	C
<i>General cardiology</i>													
Blood cholesterol (n = 72) ¹	2018	11 (15.3)	48 (66.7)	13 (18.1)	10 (35.7)	15 (53.6)	3 (10.7)	1 (2.4)	31 (75.6)	9 (22.0)	0 (0)	2 (66.7)	1 (33.3)
High Blood pressure in Adults (n = 116) ²	2017	21 (18.1)	49 (42.2)	46 (39.7)	17 (25)	26 (38.2)	25 (36.8)	1 (2.4)	20 (48.8)	20 (48.8)	3 (42.9)	3 (42.9)	1 (14.3)
Syncope (n = 103) ³	2017	0 (0)	55 (53.4)	48 (46.6)	0 (0)	9 (34.6)	17 (65.4)	0 (0)	35 (53)	31 (47)	0 (0)	11 (100)	0 (0)
Perioperative cardiovascular evaluation for noncardiac surgery (n = 69) ⁴	2014	3 (4.3)	37 (53.6)	29 (42)	1 (6.3)	5 (31.3)	10 (62.5)	1 (2.6)	22 (57.9)	15 (39.5)	1 (6.7)	10 (66.7)	4 (26.7)
Cardiovascular risk (n = 6) ⁵	2013	0 (0)	4 (66.7)	2 (33.3)	0 (0)	1 (100)	0 (0)	0 (0)	2 (50)	2 (50)	0 (0)	1 (100)	0 (0)
Lifestyle management to reduce cardiovascular risk (n = 10) ⁶	2013	9 (90)	1 (10)	0 (0)	7 (100)	0 (0)	0 (0)	2 (66.7)	1 (33.3)	0 (0)	--*	--*	--*
Overweight and obesity in adults (n = 16) ⁷	2013	11 (68.8)	3 (18.8)	2 (12.5)	7 (70)	2 (20)	1 (10)	4 (66.7)	1 (16.7)	1 (16.7)	--*	--*	--*
Cardiovascular disease prevention in women (n = 39) ⁸	2011	12 (30.8)	26 (66.7)	1 (2.6)	9 (32.1)	19 (67.9)	0 (0)	0 (0)	6 (60.0)	4 (40.0)	3 (75.0)	1 (25.0)	0 (0)

Guideline (N recommendations)	Year	Overall			Class I			Class II			Class III		
		A	B	C	A	B	C	A	B	C	A	B	C
Cardiovascular risk in asymptomatic adults (n = 35) ⁹	2010	0 (0)	24 (68.6)	11 (31.4)	0 (0)	4 (100)	0 (0)	0 (0)	14 (77.8)	4 (22.2)	0 (0)	6 (46.2)	7 (53.8)
<i>General cardiology summary, median (IQR), %</i>	--	15.3 (0.0, 30.8)	53.6 (42.2, 66.7)	31.4 (12.5, 39.7)	24.3 (0.0, 37.5)	34.6 (29.7, 53.6)	10.7 (0, 45.9)	2.4 (0.0, 3.7)	50.0 (33.3, 57.9)	39.5 (22.0, 48.8)	0.0 (0.0, 7.9)	66.7 (44.5, 83.3)	26.7 (7.1, 43.5)
<i>Coronary artery disease</i>													
Non-ST-elevation acute coronary syndromes (n = 179) ¹⁰	2014	27 (15.1)	92 (51.4)	60 (33.5)	22 (20.2)	49 (45)	38 (34.9)	0 (0)	33 (63.5)	19 (36.5)	5 (27.8)	10 (55.6)	3 (16.7)
Stable ischemic heart disease (n = 159) ¹¹	2014	14 (8.8)	79 (49.7)	66 (41.5)	9 (15.8)	34 (59.6)	14 (24.6)	2 (2.7)	38 (51.4)	34 (45.9)	3 (10.7)	7 (25)	18 (64.3)
ST-elevation myocardial infarction (n = 123) ¹²	2012	16 (13)	74 (60.2)	33 (26.8)	14 (18.7)	42 (56)	19 (25.3)	2 (5.1)	24 (61.5)	13 (33.3)	0 (0)	8 (88.9)	1 (11.1)
Coronary artery bypass graft surgery (n = 164) ¹³	2011	15 (9.1)	98 (59.8)	51 (31.1)	10 (16.4)	38 (62.3)	13 (21.3)	5 (5.6)	55 (61.8)	29 (32.6)	0 (0)	5 (35.7)	9 (64.3)
Percutaneous coronary intervention (n = 178) ¹⁴	2011	22 (12.4)	90 (50.6)	66 (37.1)	13 (19.4)	34 (50.7)	20 (29.9)	5 (6.1)	43 (52.4)	34 (41.5)	4 (13.8)	13 (44.8)	12 (41.4)
<i>Coronary artery disease summary, median (IQR), %</i>	--	12.4 (9.1-13.0)	51.4 (50.6, 59.8)	33.5 (31.1, 37.1)	18.7 (16.4, 19.4)	56.0 (50.7, 59.6)	25.3 (24.6, 29.9)	5.1 (2.7, 5.6)	61.5 (52.4, 61.8)	36.5 (33.3, 41.5)	10.7 (0.0, 13.8)	44.8 (35.7, 55.6)	41.4 (16.7, 64.3)
<i>Vascular medicine</i>													

Guideline (N recommendations)	Year	Overall			Class I			Class II			Class III		
		A	B	C	A	B	C	A	B	C	A	B	C
Lower extremity peripheral artery disease (n = 88) ¹⁵	2016	16 (18.2)	40 (45.5)	32 (36.4)	11 (26.8)	12 (29.3)	18 (43.9)	4 (10.8)	19 (51.4)	14 (37.8)	1 (10)	9 (90)	0 (0)
Extracranial carotid and vertebral artery disease (n = 97) ¹⁶	2011	7 (7.2)	25 (25.8)	65 (67)	4 (12.5)	11 (34.4)	17 (53.1)	2 (3.7)	13 (24.1)	39 (72.2)	1 (9.1)	1 (9.1)	9 (81.8)
Thoracic aortic disease (n = 120) ¹⁷	2010	0 (0)	45 (37.5)	75 (62.5)	0 (0)	25 (35.7)	45 (64.3)	0 (0)	18 (40.9)	26 (59.1)	0 (0)	2 (33.3)	4 (66.7)
<i>Vascular medicine summary, median (IQR), %</i>	--	7.2 (3.6, 12.7)	37.5 (31.7, 41.5)	62.5 (49.4, 64.8)	12.5 (6.3, 19.7)	34.4 (31.9, 35.1)	53.1 (48.5, 58.7)	3.7 (1.9, 7.3)	40.9 (32.5, 46.2)	59.1 (48.4, 65.7)	9.1 (4.5, 9.5)	33.3 (21.2, 61.6)	66.7 (33.3, 73.9)
<i>Congenital and valvular heart disease</i>													
Adults with congenital heart disease (n = 179) ¹⁸	2018	1 (0.6)	87 (48.6)	91 (50.8)	1 (1.1)	45 (50)	44 (48.9)	0 (0)	41 (48.8)	43 (51.2)	0 (0)	1 (20)	4 (80)
Valvular heart disease (n = 227) ¹⁹	2014	7 (3.1)	107 (47.1)	113 (49.8)	6 (5.4)	52 (46.8)	53 (47.7)	0 (0)	45 (44.1)	57 (55.9)	1 (7.1)	10 (71.4)	3 (21.4)
<i>Congenital and valvular heart disease summary, median (IQR), %</i>	--	1.8 (1.2-2.8)	47.8 (47.5, 48.2)	50.3 (50.1-50.5)	3.3 (2.2, 4.3)	48.4 (47.6, 49.2)	48.3 (48.0, 48.6)	0 (0, 0)	46.4 (45.3, 47.6)	53.5 (52.4, 54.7)	3.5 (1.8, 5.3)	45.7 (32.9, 58.5)	50.7 (36.1, 65.3)
<i>Heart failure and myocardial disease</i>													
Heart failure (n = 136) ²⁰	2013	26 (19.1)	66 (48.5)	44 (32.4)	19 (33.3)	17 (29.8)	21 (36.8)	5 (8.2)	40 (65.6)	16 (26.2)	2 (11.1)	9 (50)	7 (38.9)
Hypertrophic cardiomyopathy (n = 124) ²¹	2011	0 (0)	46 (37.1)	78 (62.9)	0 (0)	22 (56.4)	17 (43.6)	0 (0)	18 (30.5)	41 (69.5)	0 (0)	6 (23.1)	20 (76.9)
<i>Heart failure and myocardial disease</i>	--	9.5 (4.8, 14.3)	42.8 (40.0, 45.7)	47.6 (40.0, 55.3)	16.6 (8.3, 25.0)	43.1 (36.4, 49.7)	40.2 (38.5, 41.9)	4.1 (2.0, 6.1)	48.0 (39.3, 56.8)	47.8 (37.0, 58.7)	5.5 (2.8, 8.3)	36.5 (29.8, 43.3)	57.9 (48.4, 67.4)

Guideline (N recommendations)	Year	Overall			Class I			Class II			Class III		
		A	B	C	A	B	C	A	B	C	A	B	C
<i>summary, median (IQR), %</i>													
<i>Electrophysiology</i>													
Bradycardia and cardiac conduction delays (n = 144) ²²	2018	2 (1.4)	75 (52.1)	67 (46.5)	2 (3.9)	28 (54.9)	21 (41.2)	0 (0)	28 (37.8)	46 (62.2)	0 (0)	19 (100)	0 (0)
Ventricular arrhythmias and the prevention of sudden cardiac death (n = 183) ²³	2017	11 (6)	134 (73.2)	38 (20.8)	7 (8.2)	67 (78.8)	11 (12.9)	2 (2.5)	56 (70)	22 (27.5)	2 (11.1)	11 (61.1)	5 (27.8)
Supraventricular tachycardia (n = 125) ²⁴	2015	1 (0.8)	68 (54.4)	56 (44.8)	1 (2)	31 (62)	18 (36)	0 (0)	36 (50)	36 (50)	0 (0)	1 (33.3)	2 (66.7)
Atrial fibrillation (n = 116) ²⁵	2014	10 (8.6)	47 (40.5)	59 (50.9)	6 (11.8)	16 (31.4)	29 (56.9)	4 (8.2)	23 (46.9)	22 (44.9)	0 (0)	8 (50)	8 (50)
Device-based therapy of cardiac rhythm abnormalities (n = 122) ²⁶	2008	6 (4.9)	45 (36.9)	71 (58.2)	4 (10.5)	15 (39.5)	19 (50)	1 (2)	18 (36)	31 (62)	1 (2.9)	12 (35.3)	21 (61.8)
<i>Electrophysiology summary, median (IQR), %</i>	--	4.9 (1.4, 6.0)	52.1 (40.5, 54.4)	46.5 (44.8, 50.9)	8.2 (3.9, 10.5)	54.9 (39.5, 62.0)	41.2 (36.0, 50.0)	2.0 (0, 2.5)	46.9 (37.8, 50.0)	50.0 (44.9, 62.0)	0 (0, 2.9)	50 (35.3, 61.1)	50.0 (27.8, 61.8)

*, no recommendation of this class

eTable 2. Levels of Evidence by Guideline and Category of Recommendation (ESC Guidelines)

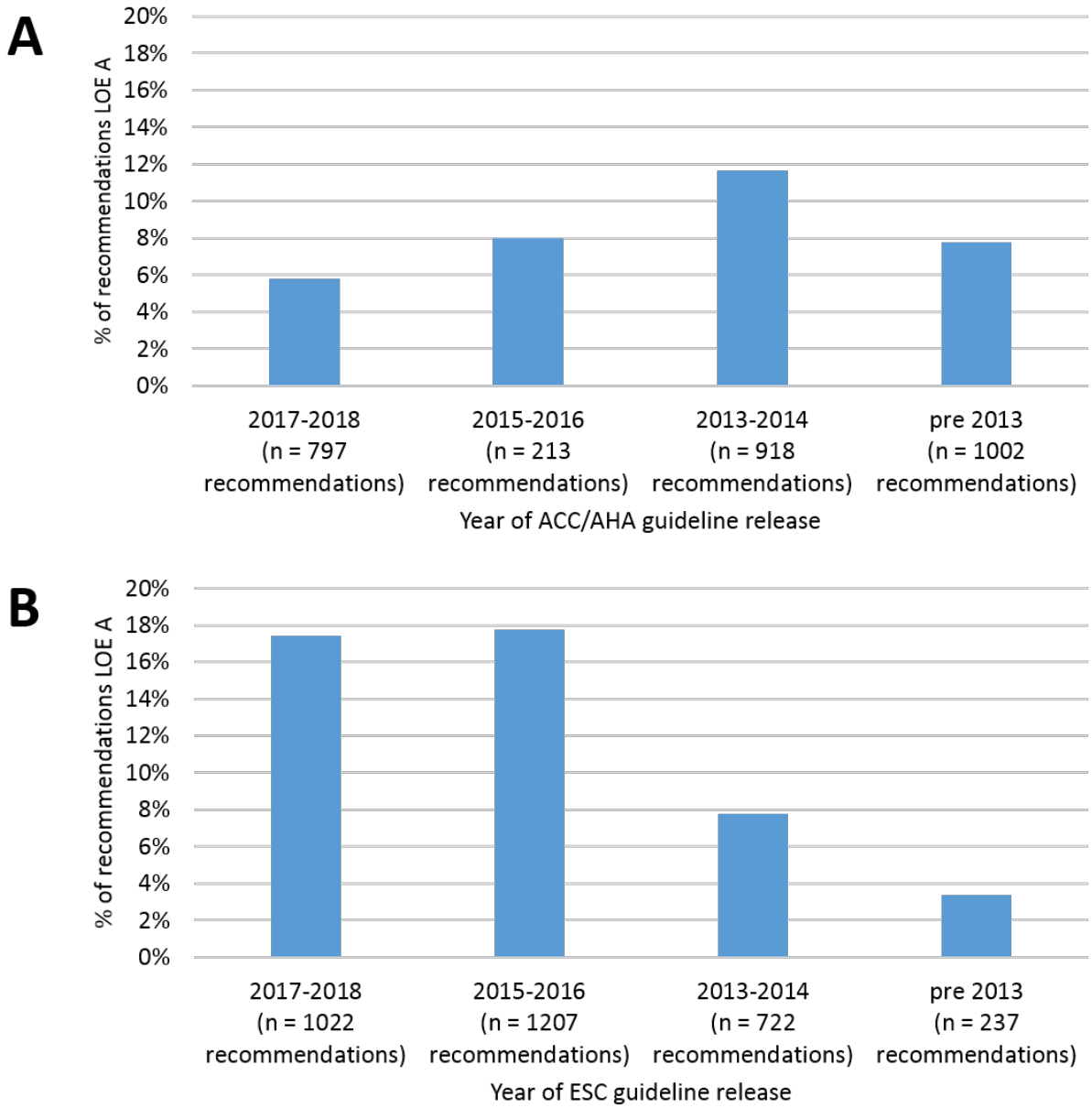
Guideline (N recommendations)	Year	Overall			Class I			Class II			Class III		
		A	B	C	A	B	C	A	B	C	A	B	C
<i>General cardiology</i>													
Hypertension (n = 135) ²⁷	2018	49 (36.3)	39 (28.9)	47 (34.8)	41 (47.1)	18 (20.7)	28 (32.2)	1 (2.9)	19 (54.3)	15 (42.9)	7 (53.8)	2 (15.4)	4 (30.8)
Cardiovascular disease in pregnancy (n = 149) ²⁸	2018	2 (1.3)	11 (7.4)	136 (91.3)	2 (2.5)	8 (9.9)	71 (87.7)	0 (0)	2 (3.6)	53 (96.4)	0 (0)	1 (7.7)	12 (92.3)
Syncope (n = 114) ²⁹	2018	5 (4.4)	51 (44.7)	58 (50.9)	4 (8.7)	20 (43.5)	22 (47.8)	0 (0)	29 (45.3)	35 (54.7)	1 (25)	2 (50)	1 (25)
Dyslipidemias (n = 97) ³⁰	2016	30 (30.9)	18 (18.6)	49 (50.5)	15 (33.3)	4 (8.9)	26 (57.8)	11 (23.9)	13 (28.3)	22 (47.8)	4 (66.7)	1 (16.7)	1 (16.7)
Cardiovascular disease prevention (n = 181) ³¹	2016	59 (32.6)	73 (40.3)	49 (27.1)	41 (43.6)	34 (36.2)	19 (20.2)	15 (19.5)	34 (44.2)	28 (36.4)	3 (30)	5 (50)	2 (20)
Perioperative cardiovascular evaluation for noncardiac surgery (n = 121) ³²	2014	9 (7.4)	44 (36.4)	68 (56.2)	7 (14)	11 (22)	32 (64)	1 (1.8)	27 (47.4)	29 (50.9)	1 (7.1)	6 (42.9)	7 (50)
Diabetes mellitus (n = 83) ³³	2013	37 (44.6)	26 (31.3)	20 (24.1)	35 (68.6)	10 (19.6)	6 (11.8)	0 (0)	13 (50)	13 (50)	2 (33.3)	3 (50)	1 (16.7)
<i>General cardiology summary, median (IQR), %</i>	--	30.9 (5.9, 34.4)	31.3 (23.8, 38.3)	50.5 (30.9, 53.5)	33.3 (11.3, 45.3)	20.7 (14.7, 29.1)	47.8 (26.2, 60.9)	1.8 (0, 11.2)	45.3 (36.2, 48.7)	50.0 (45.3, 52.8)	30.0 (16.3, 43.5)	42.9 (16.0, 50.0)	25.0 (18.3, 40.4)
<i>Coronary artery disease</i>													
Myocardial revascularization (n = 228) ³⁴	2018	60 (26.3)	82 (36)	86 (37.7)	40 (40)	30 (30)	30 (30)	16 (14.3)	45 (40.2)	51 (45.5)	4 (25)	7 (43.8)	5 (31.3)

Guideline (N recommendations)	Year	Overall			Class I			Class II			Class III		
		A	B	C	A	B	C	A	B	C	A	B	C
ST elevation myocardial infarction (n = 160) ³⁵	2017	37 (23.1)	44 (27.5)	79 (49.4)	26 (28.3)	20 (21.7)	46 (50)	8 (15.4)	15 (28.8)	29 (55.8)	3 (18.8)	9 (56.3)	4 (25)
Non-ST elevation acute syndrome (n = 134) ³⁶	2015	36 (26.9)	44 (32.8)	54 (40.3)	29 (36.7)	24 (30.4)	26 (32.9)	6 (12.8)	16 (34)	25 (53.2)	1 (12.5)	4 (50)	3 (37.5)
Stable ischemic heart disease (n = 130) ³⁷	2013	21 (16.2)	44 (33.8)	65 (50)	17 (24.3)	23 (32.9)	30 (42.9)	0 (0)	20 (42.6)	27 (57.4)	4 (30.8)	1 (7.7)	8 (61.5)
<i>Coronary artery disease summary, median (IQR), %</i>	--	24.7 (21.4, 26.4)	33.3 (31.5, 34.3)	44.8 (39.6, 49.5)	32.5 (27.3, 37.5)	30.2 (27.9, 31.0)	37.9 (32.2, 44.7)	13.5 (9.6, 14.6)	37.1 (32.7, 40.8)	54.5 (51.3, 56.2)	21.9 (17.2, 26.4)	46.9 (34.9, 51.6)	34.4 (29.7, 43.5)
<i>Vascular medicine</i>													
Peripheral artery disease (n = 125) ³⁸	2018	20 (16)	44 (35.2)	61 (48.8)	13 (25.5)	10 (19.6)	28 (54.9)	4 (6.3)	32 (50)	28 (43.8)	3 (30)	2 (20)	5 (50)
Aortic disease (n = 119) ³⁹	2014	4 (3.4)	18 (15.1)	97 (81.5)	4 (6.1)	5 (7.6)	57 (86.4)	0 (0)	13 (26.5)	36 (73.5)	0 (0)	0 (0)	4 (100)
Pulmonary embolism (n = 71) ⁴⁰	2014	10 (14.1)	34 (47.9)	27 (38)	7 (22.6)	15 (48.4)	9 (29)	0 (0)	17 (50)	17 (50)	3 (50)	2 (33.3)	1 (16.7)
<i>Vascular medicine summary, median (IQR), %</i>	--	14.1 (8.7, 15.0)	35.2 (25.1, 41.5)	48.8 (43.4, 65.1)	22.6 (14.3, 24.0)	19.6 (13.6, 34.0)	54.9 (41.9, 70.6)	0 (0, 3.1)	50.0 (38.2, 50.0)	50.0 (46.9, 61.7)	30.0 (15.0, 40.0)	20.0 (10.0, 26.6)	50.0 (33.3, 75.0)
<i>Congenital and valvular heart disease</i>													
Valvular heart disease (n = 111) ⁴¹	2017	2 (1.8)	21 (18.9)	88 (79.3)	0 (0)	11 (25)	33 (75)	2 (3.2)	8 (12.7)	53 (84.1)	0 (0)	2 (50)	2 (50)
Infective endocarditis (n = 95) ⁴²	2015	1 (1.1)	48 (50.5)	46 (48.4)	1 (1.9)	38 (70.4)	15 (27.8)	0 (0)	10 (30.3)	23 (69.7)	0 (0)	0 (0)	8 (100)

Guideline (N recommendations)	Year	Overall			Class I			Class II			Class III		
		A	B	C	A	B	C	A	B	C	A	B	C
Pericardial disease (n = 112) ⁴³	2015	5 (4.5)	23 (20.5)	84 (75)	4 (7.3)	11 (20)	40 (72.7)	1 (2.1)	11 (22.9)	36 (75)	0 (0)	1 (11.1)	8 (88.9)
Pulmonary hypertension (n = 211) ⁴⁴	2015	8 (3.8)	41 (19.4)	162 (76.8)	8 (9)	26 (29.2)	55 (61.8)	0 (0)	12 (11.7)	91 (88.3)	0 (0)	3 (15.8)	16 (84.2)
Adult congenital heart disease (n = 105) ⁴⁵	2010	0 (0)	4 (3.8)	101 (96.2)	0 (0)	4 (8.2)	45 (91.8)	0 (0)	0 (0)	48 (100)	0 (0)	0 (0)	8 (100)
<i>Congenital and valvular heart disease summary, median (IQR), %</i>	--	1.8 (1.1, 3.8)	19.4 (18.9, 20.5)	76.8 (75, 79.3)	0.9 (0, 3.2)	25.0 (20.0, 29.2)	72.7 (61.8, 75.0)	0 (0, 2.1)	12.7 (11.7, 22.9)	84.1 (75, 88.3)	0 (0, 0)	11.1 (0, 15.8)	88.9 (84.2, 100)
<i>Heart failure and myocardial disease</i>													
Acute and chronic heart failure (n = 187) ⁴⁶	2016	38 (20.3)	57 (30.5)	92 (49.2)	23 (29.1)	15 (19)	41 (51.9)	5 (6)	36 (43.4)	42 (50.6)	10 (40)	6 (24)	9 (36)
Hypertrophic cardiomyopathy (n = 132) ⁴⁷	2014	0 (0)	36 (27.3)	96 (72.7)	0 (0)	22 (40.7)	32 (59.3)	0 (0)	13 (17.3)	62 (82.7)	0 (0)	1 (33.3)	2 (66.7)
<i>Heart failure and myocardial disease summary, median (IQR), %</i>	--	10.1 (5.1, 15.2)	28.9 (28.1, 29.7)	60.9 (55.1, 66.8)	14.5 (7.3, 21.8)	29.8 (24.4, 35.3)	55.6 (53.7, 57.4)	0 (0, 0)	30.3 (23.8, 36.9)	66.6 (58.6, 74.7)	20.0 (10.0, 30.0)	28.6 (26.3, 31.0)	51.3 (43.7, 59.0)
<i>Electrophysiology</i>													
Atrial fibrillation (n = 154) ⁴⁸	2016	22 (14.3)	80 (51.9)	52 (33.8)	14 (29.8)	23 (48.9)	10 (21.3)	5 (5.3)	51 (54.3)	38 (40.4)	3 (23.1)	6 (46.2)	4 (30.8)
Ventricular arrhythmias (n = 247) ⁴⁹	2015	15 (6.1)	96 (38.9)	136 (55.1)	11 (8.9)	48 (38.7)	65 (52.4)	1 (0.9)	43 (39.4)	65 (59.6)	3 (21.4)	5 (35.7)	6 (42.9)

Guideline (N recommendations)	Year	Overall			Class I			Class II			Class III		
		A	B	C	A	B	C	A	B	C	A	B	C
Pacing and cardiac resynchronization therapy (n = 66) ⁵⁰	2013	6 (9.1)	32 (48.5)	28 (42.4)	3 (12.5)	10 (41.7)	11 (45.8)	2 (6.3)	17 (53.1)	13 (40.6)	1 (10)	5 (50)	4 (40)
Supraventricular arrhythmias (n = 132) ⁵¹	2003	8 (6.1)	43 (32.6)	81 (61.4)	4 (6.7)	32 (53.3)	24 (40)	4 (6.5)	9 (14.5)	49 (79)	0 (0)	2 (20)	8 (80)
<i>Electrophysiology summary, median (IQR), %</i>	--	7.6 (6.1, 10.4)	43.7 (37.3, 49.3)	48.7 (40.2, 56.7)	10.7 (8.3, 16.8)	45.3 (40.9, 50.0)	42.9 (35.3, 47.4)	5.8 (4.2, 6.3)	46.2 (33.2, 53.4)	50.1 (40.5, 64.4)	15.7 (7.5, 21.8)	40.9 (31.8, 47.1)	41.4 (37.7, 52.2)

eFigure. Proportion of Recommendations Characterized as Level of Evidence A by Year of Guideline Document Release



Panel A represents current ACC/AHA guidelines; Panel B represents current ESC guidelines

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