
Beacon Hospital GP Study Day

Jonathan Lyne

Consultant Cardiologist and Electrophysiologist

Director of Pacing and Electrophysiology

5th April 2025

What do we offer?



**Access to high quality
clinical care**



**Access to the most
modern best in class
technology**



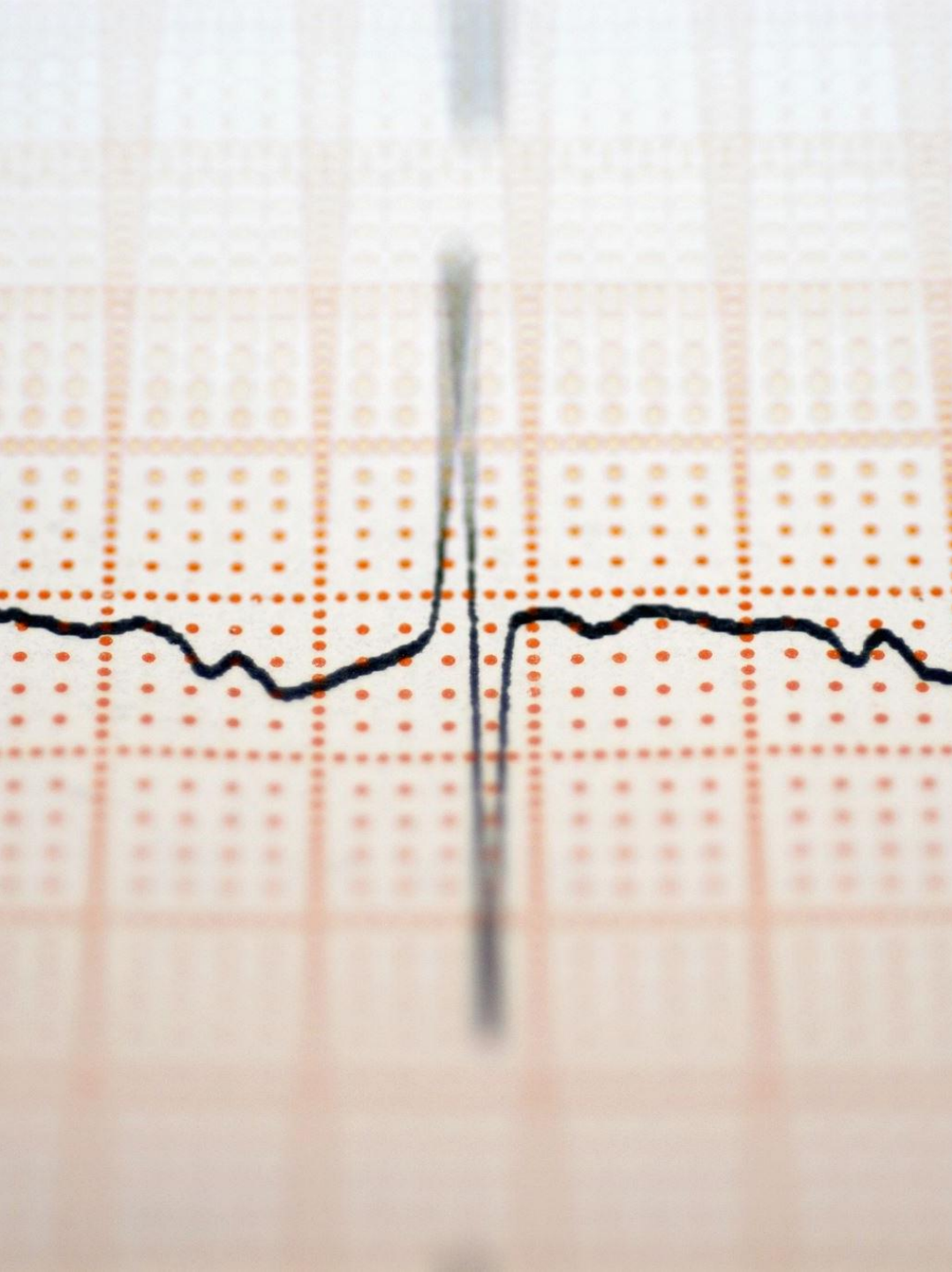
**Clinical service
integration with cutting
edge research**



**Collaboration and
partnership with
industry leaders in
ablation and pacing
technology**



**Fellowship / training /
proctoring clinical
procedures – nationally
and internationally**

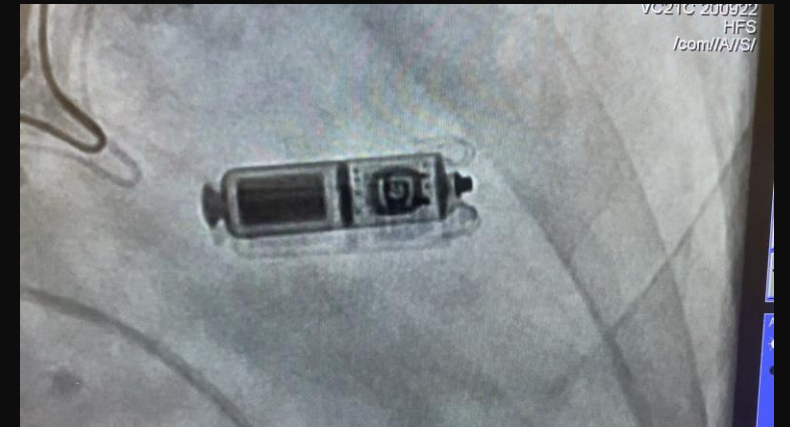
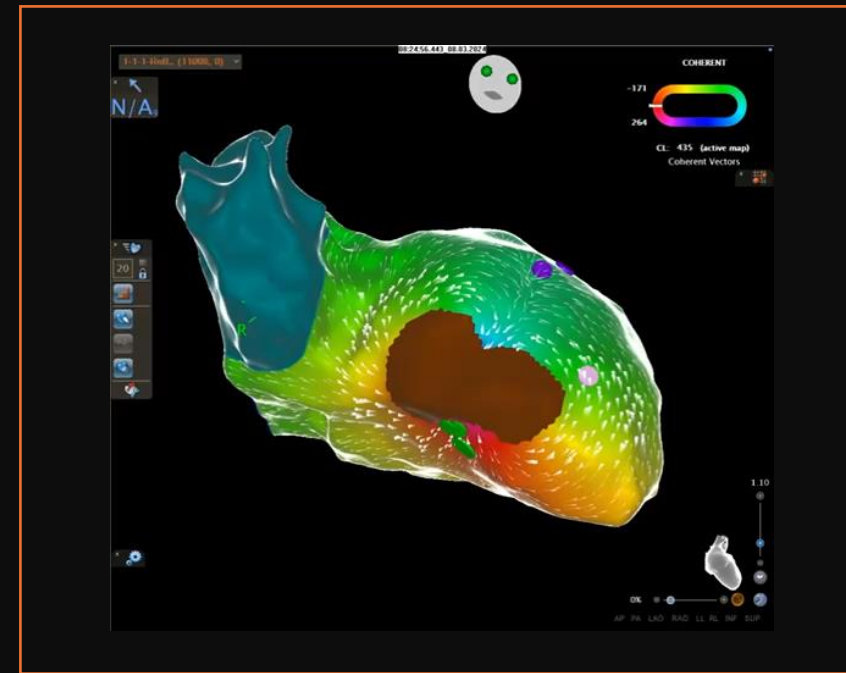


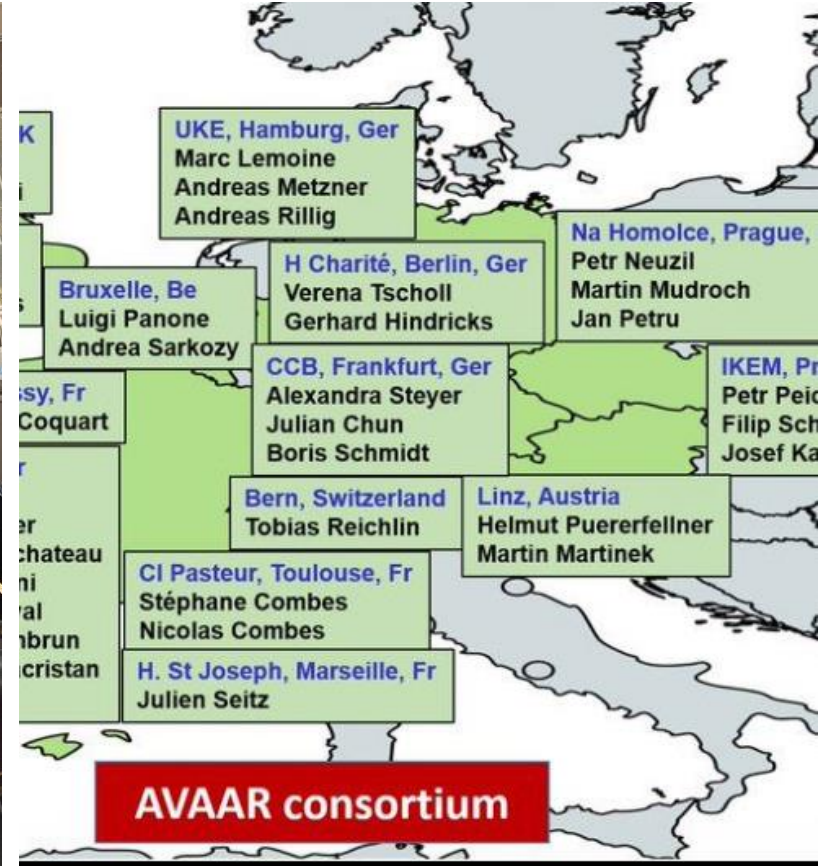
Heart and Vascular Services

- Device therapy
- Electrophysiology / Arrhythmia
- Revascularisation – Cardiology / Surgical
- Structural
- Heart failure
- Cardiac Imaging
- Congenital
- Paediatric

National services

- Lead extraction – largest service in Ireland
- Complex ablation – Ventricular
- Complex device implantation – Conduction system pacing
- Outpatient referrals and interhospital transfers
- National and International proctoring





Research and Training

Research

CASE REPORT

De novo ventricular tachycardia ablation with stacked pulsed-field and radiofrequency energy via a dual-energy lattice-tipped catheter

James Mannion, MB, BCh, MRCPI,^{1,2} Jonathan Lyne, FESC, FHRS^{1,3}

From the ¹Electrophysiology Department, Beacon Hospital, Sandymount, Dublin 18, Ireland, ²Cardiology Department, Cork University Hospital, Wilton, Cork, Ireland, and ³School of Medicine, University College Dublin, Belfield, Dublin 4, Ireland.

Circulation: Arrhythmia and Electrophysiology

ORIGINAL ARTICLE



Multicenter Hemodynamic Assessment of the LOT-CRT Strategy: When Does Combining Left Bundle Branch Pacing and Coronary Venous Pacing Enhance Resynchronization?

Primary Results of the CSPOT Study

Marek Jastrzebski¹, MD, PhD; Paul Foley², MB ChB, MD, Res; Badrinathan Chandrasekaran³, BSc, MD, Res; Zachary Whinnett⁴, MD, PhD; Pugazhendhi Vijayaraman⁵, MD; Gaurav A. Upadhyay⁶, MD; Robert D. Schaller⁷, DO; Rafal Gardas⁸, MD; Travis Richardson⁹, MD; D'Anne Kudlik¹⁰, MS; Robert W. Stadler, PhD; Patrick Zimmerman¹¹, PhD; James Burrell¹², MS; Robert Waxman¹³, MS; Richard N. Cornelussen¹⁴, PhD; Jonathan Lyne¹⁵, MD; Bengt Herweg¹⁶, MD

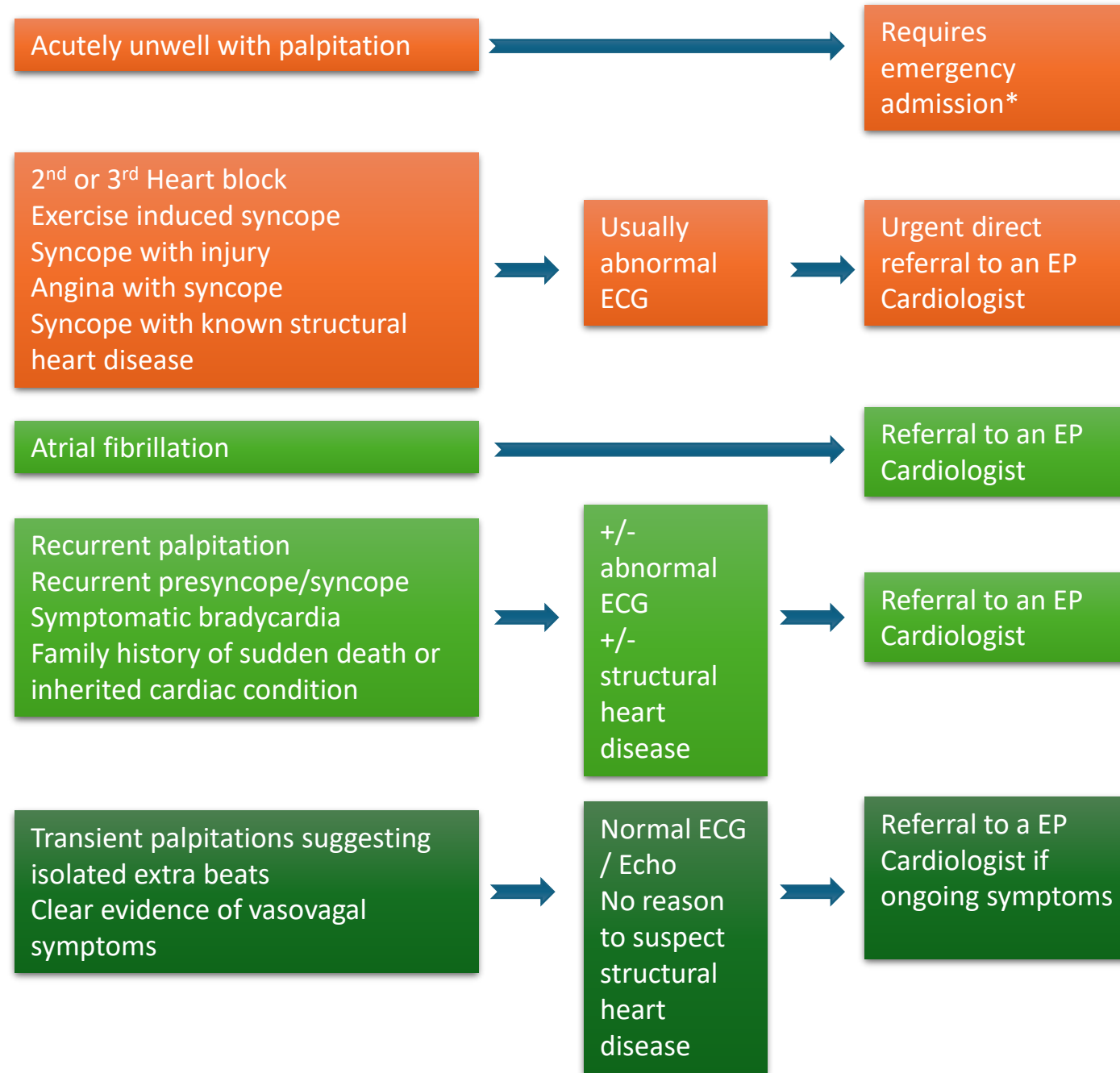
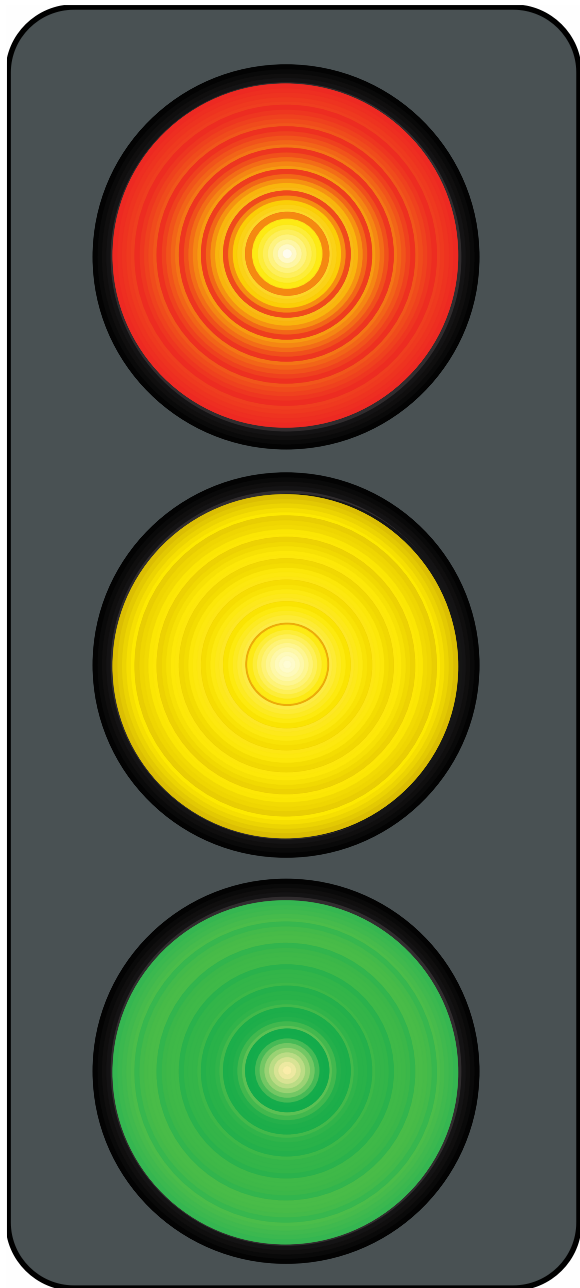
Arrhythmia Clinic

Symptomatic

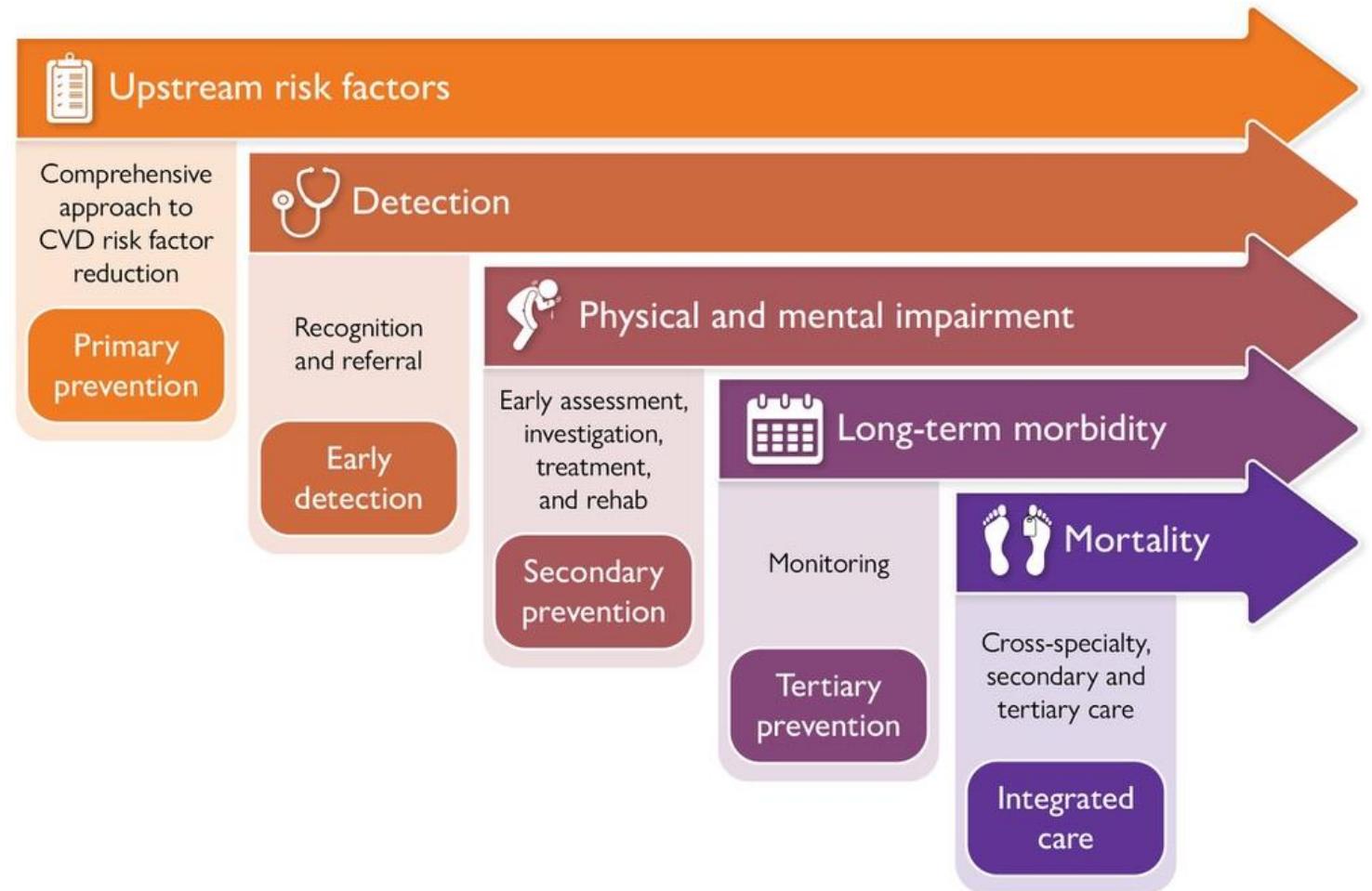
- Palpitation / tachycardia symptoms
- Syncope / Collapse / loss of consciousness

Asymptomatic

- At risk patients
- Abnormal results or testing



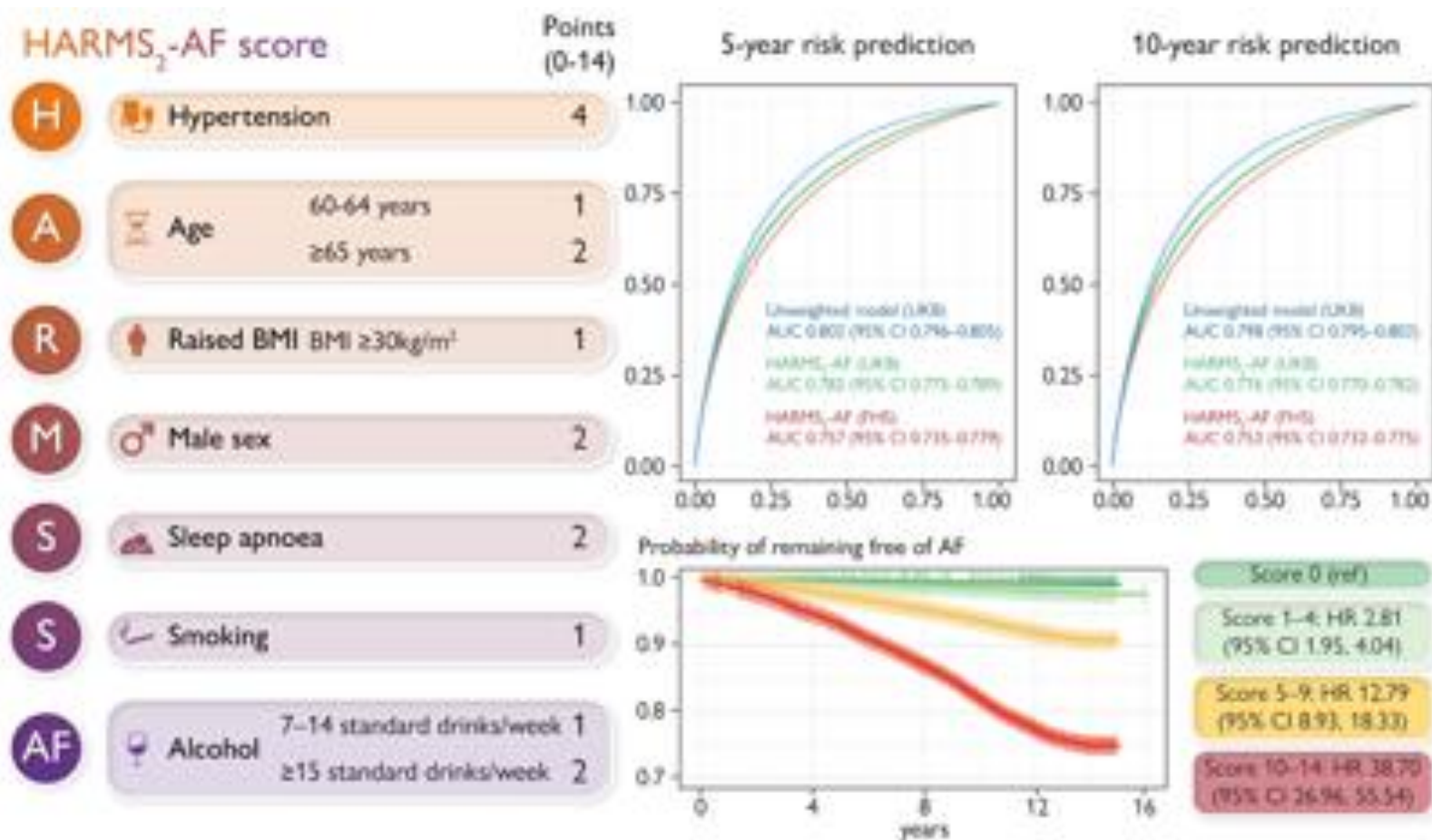
Management of atrial fibrillation and flutter



Screening for atrial fibrillation?

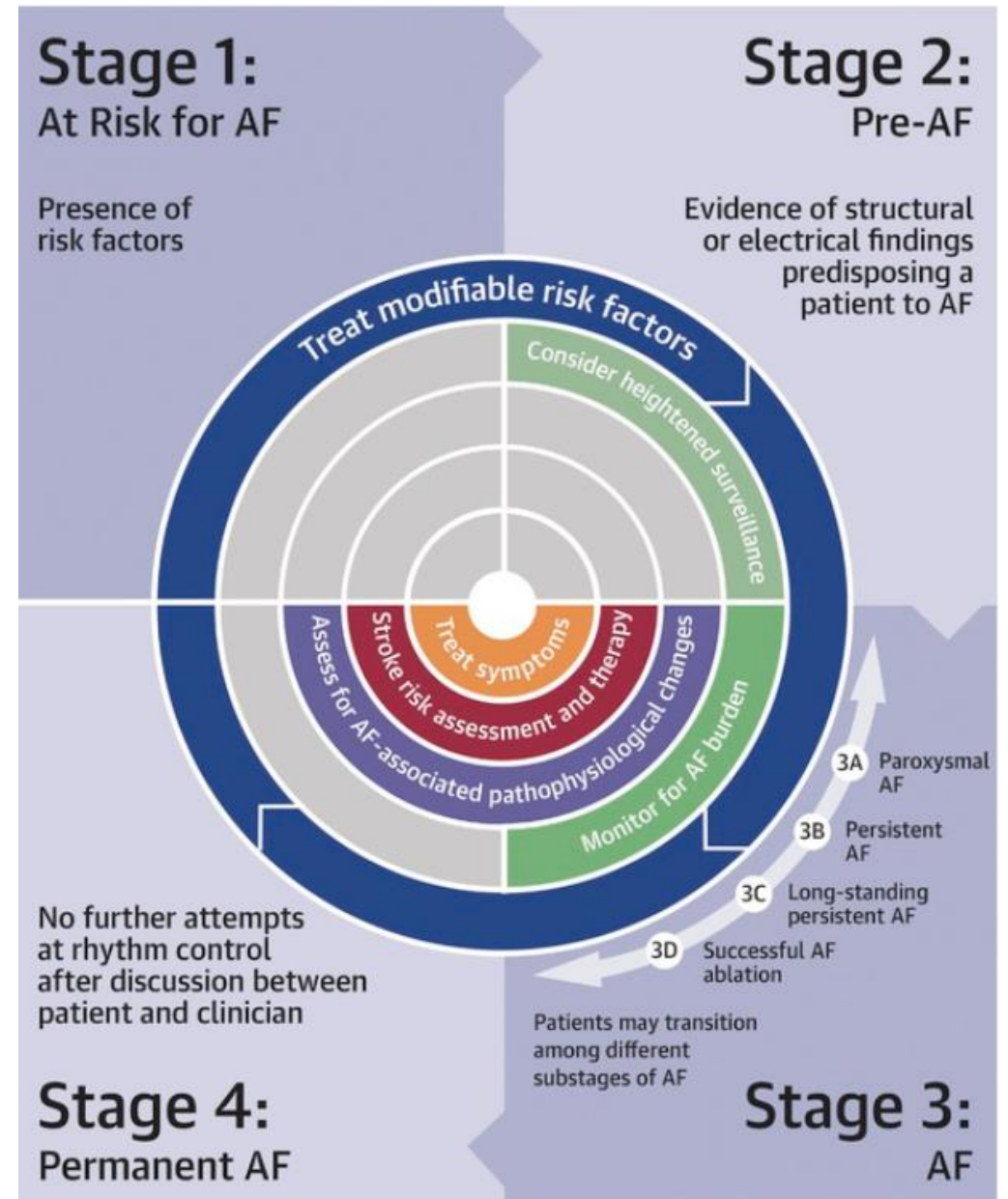
Primary prevention of AF	HARMS2-AF ¹	Screen focus on modifiable factors: HT, BMI, smoking, SDB, alcohol	To boost primary prevention of AF Effectiveness of primary prevention remains to be demonstrated
	STROKESTOP ²	AF screening = cost-effective	
	LOOP ³	Screening for AF is most effective if NT-proBNP > 15 pmol/L	

HARMS2-AF Lifestyle Risk Score



Management for New Classification of Atrial Fibrillation

Recognising AF as a Disease Continuum Improves Patient Outcomes



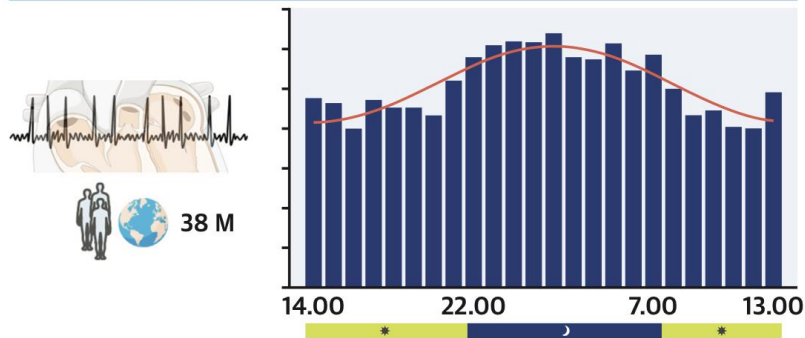
Wearables – reliable detection?



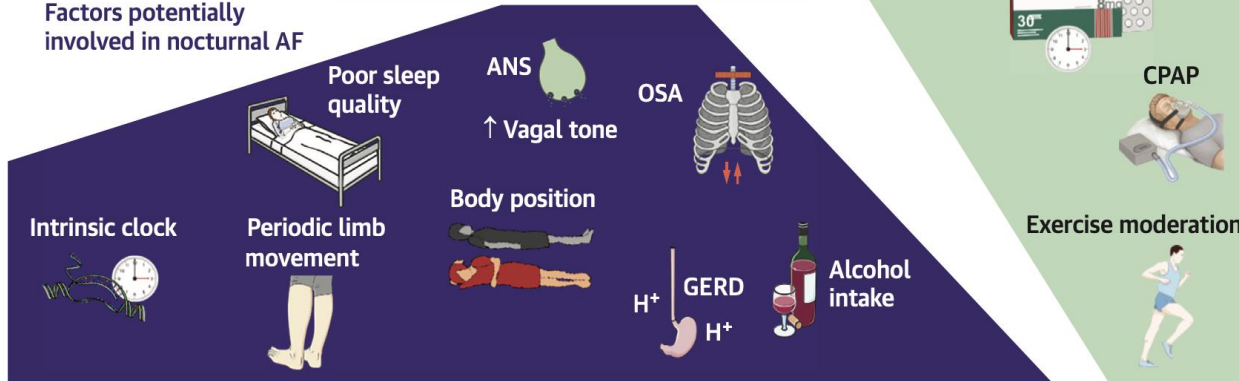
Manufacturer	Apple	Samsung	Withings	Fitbit	AliveCor
Version	Watch 6	Galaxy Watch3	ScanWatch	Sense	Kardia Mobile
Sensitivity (95% CI)	85% (72-94%)	85% (72-94%)	58% (42-72%)	66% (51-79%)	79% (64-89%)
Specificity (95% CI)	75% (67-83%)	75% (66-82%)	75% (67-83%)	79% (70-86%)	69% (60-77%)
Inconclusive tracings	18%	17%	24%	21%	26%
Preferred Choice ^{*a}	39%	12%	24%	15%	5%
Limit of HR interpretation ^{*b}	50-150 bpm	50-120 bpm	No information	50-120 bpm	50-100 bpm
Battery capacity ^{*c}	18 h ^{*d}	45 h ^{*d}	720 h ^{*d}	144 h ^{*d}	90 h / 2 y ^{*e}
Price ^{*d}	449	265	303	244	147

When the clock strikes...

Atrial Fibrillation With Nocturnal Onset

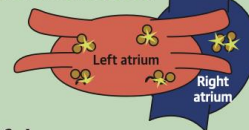


Factors potentially involved in nocturnal AF



Potential therapeutic strategies for nocturnal AF

ANS modulation



Type of drug

- ✓ Flecainide, disopyramide
- ✗ β-blockers, amiodarone

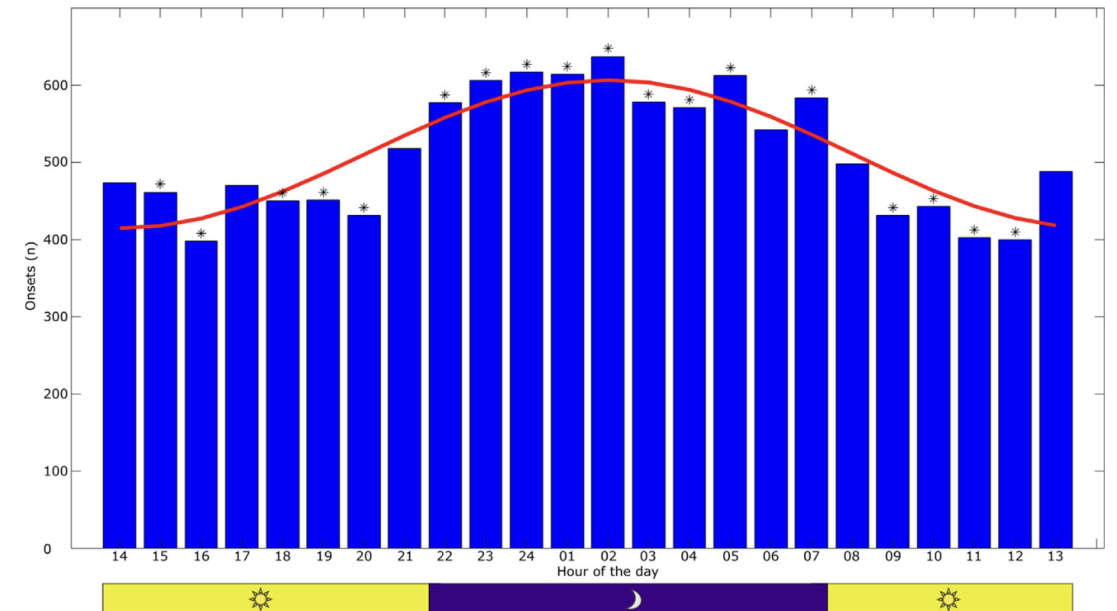
Timing of drug administration



Exercise moderation







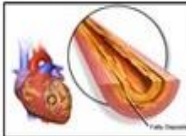









FIGURE 1 Time of Onset of Atrial Fibrillation Over a 24-Hour Period: Cumulative Data From 14 Studies

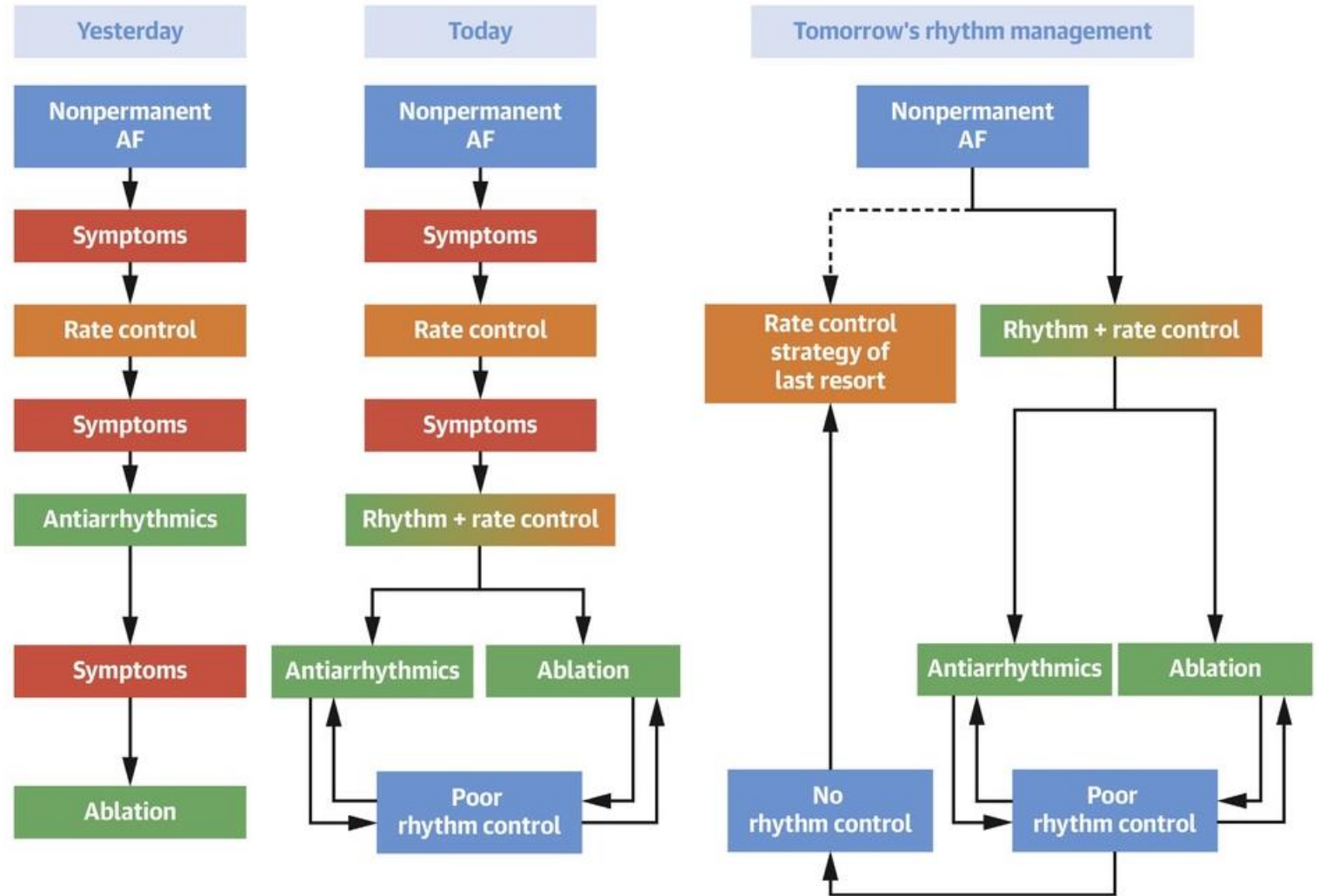


The blue bars represent the total of atrial fibrillation (AF) onsets from all 15 studies. The red line is the result of the cosinor analysis $\text{Onset}(t) = 95.7915 \cdot \cos((2\pi \cdot 0.0417 \cdot t) - 3.4094) + 510.5500$. The black asterisks mark a significantly different amount of onset, assessed by chi-square testing. The sun symbol indicates daytime, and the moon symbol indicates nighttime. The x-axis is hour of the day, and the y axis is number of AF onsets. Note that all hours with significantly more onset are nocturnal.

Long Term Outcomes in AF Patients <65 Years

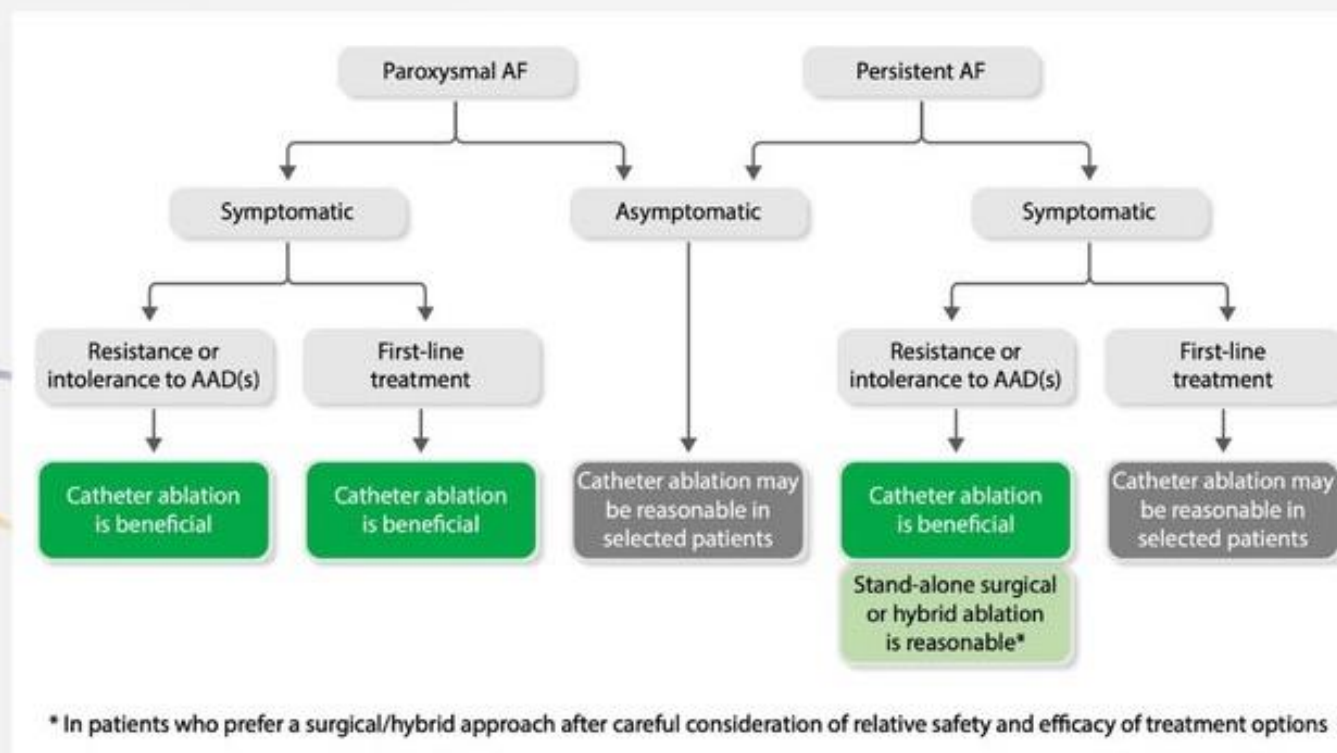
Population	Main Findings																	
Atrial fibrillation patients under 65 years of age (N=17,335)	<div><div><div><div><div><u>Younger AF patients have high risk factor burden</u></div></div><div><div>Smoking</div><div></div></div><div><div>OSA</div><div></div></div><div><div>Hypertension</div><div></div></div><div><div>Diabetes Mellitus</div><div></div></div><div><div>CAD</div><div></div></div><div><div>Heart failure</div><div></div></div><div><div>COPD</div><div></div></div><div><div>Obesity</div><div></div></div></div><div><div><div>In patients <65 years of age, AF increases risk of :</div><div><div>DEATH</div><div></div><div>STROKE</div></div><div><div>HEART ATTACK</div><div></div><div>HEART FAILURE</div></div></div></div></div><table><tr><th>Outcome</th><th>HR (95% CI)</th><th>P value</th></tr><tr><td>All Cause Mortality</td><td>1.4 (1.3-1.5)</td><td><0.001</td></tr><tr><td>HF hospitalization</td><td>2.9 (2.8-3.1)</td><td><0.001</td></tr><tr><td>Stroke hospitalization</td><td>1.8 (1.6-2)</td><td><0.001</td></tr><tr><td>MI hospitalization</td><td>1.2 (1.1-1.3)</td><td><0.001</td></tr></table></div>			Outcome	HR (95% CI)	P value	All Cause Mortality	1.4 (1.3-1.5)	<0.001	HF hospitalization	2.9 (2.8-3.1)	<0.001	Stroke hospitalization	1.8 (1.6-2)	<0.001	MI hospitalization	1.2 (1.1-1.3)	<0.001
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Methods																		
<ul style="list-style-type: none">Retrospective observational cohort study using health system wide EHR and administrative dataAge, gender and comorbidity adjusted analysis with comparison to national survival estimates and internal controls (n=918,073)																		

Evolution of Atrial Fibrillation Management

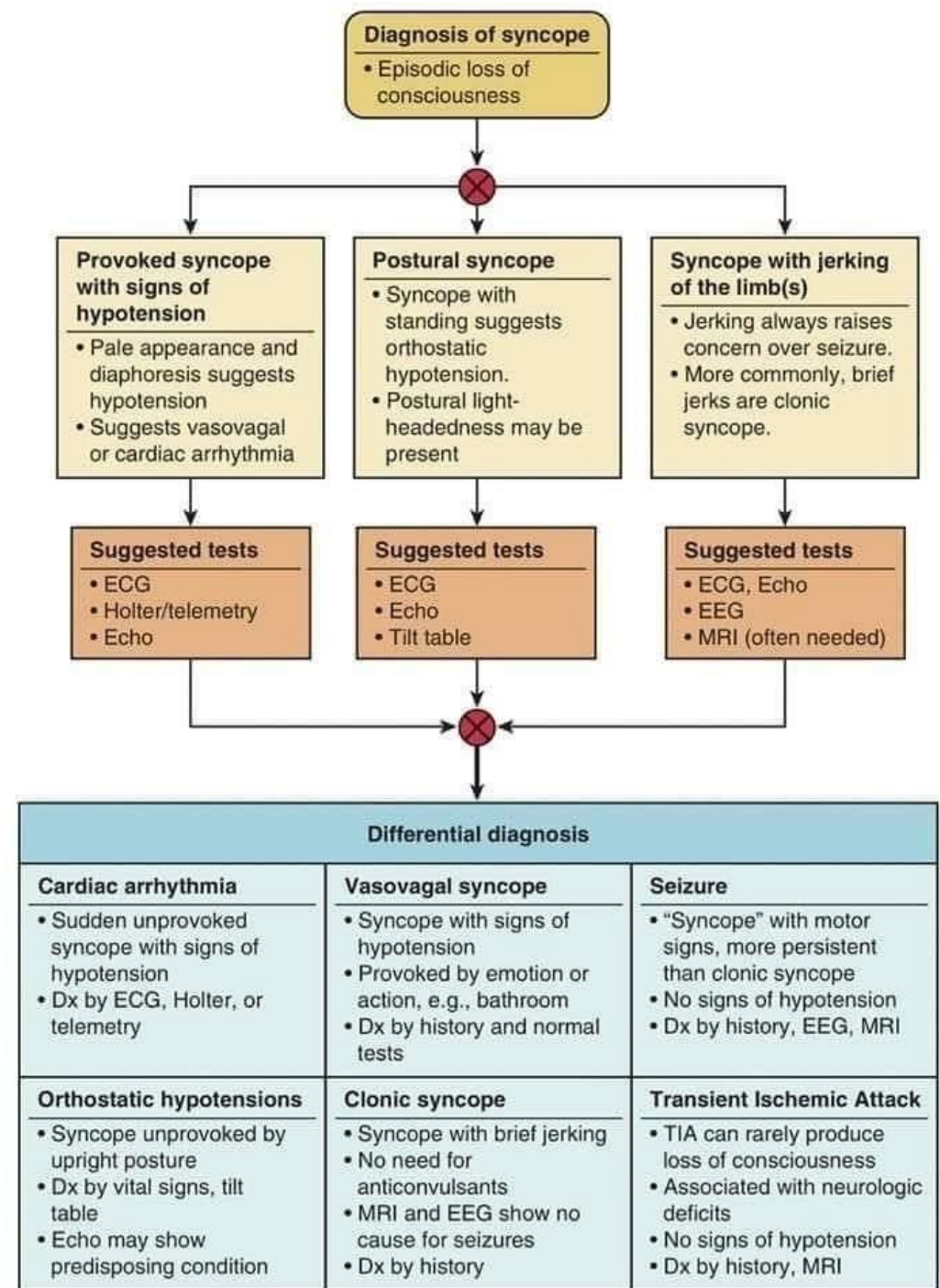


NEWLY PUBLISHED GUIDANCE

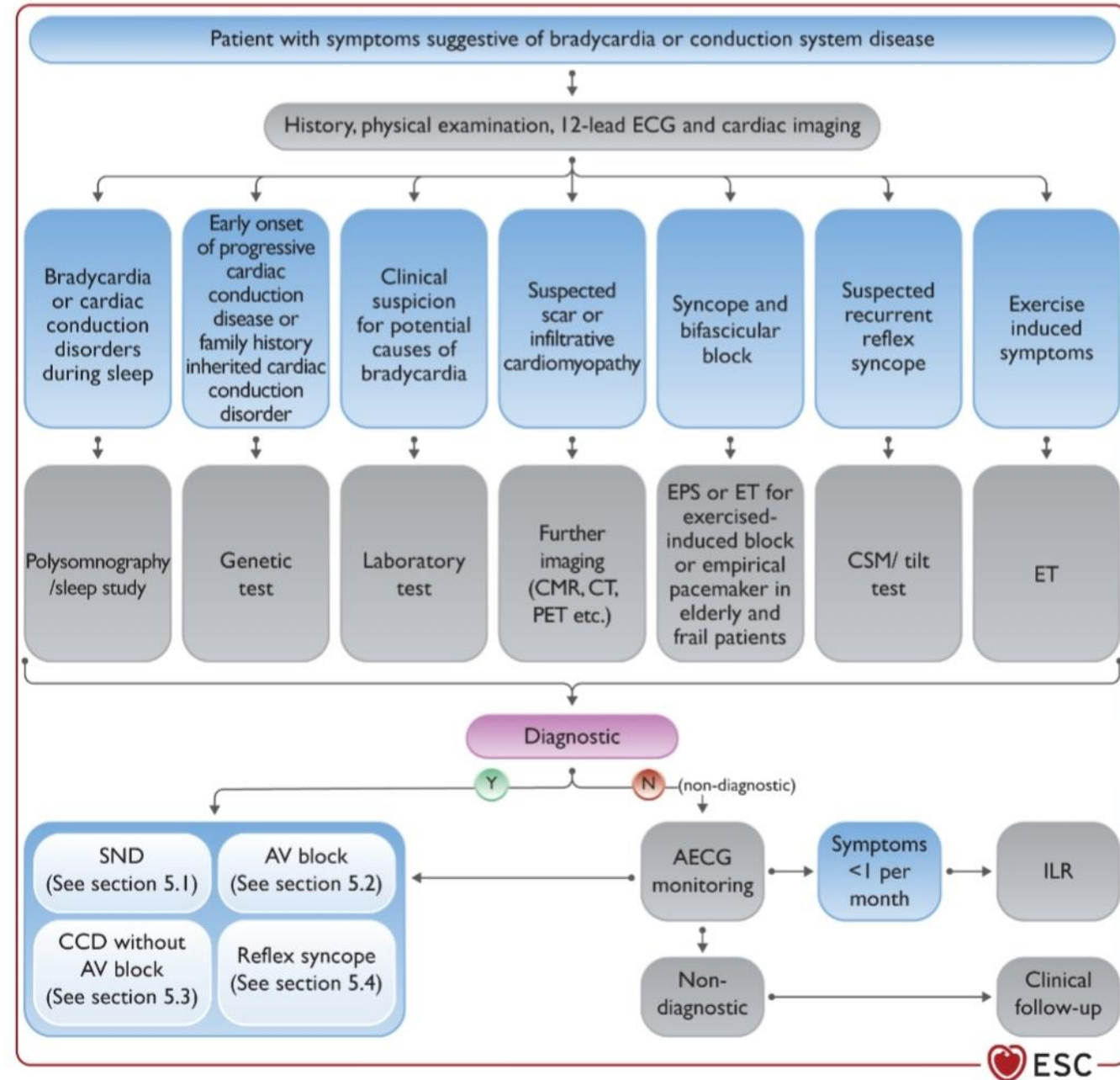
European Heart Rhythm Association (EHRA)/Heart Rhythm Society (HRS)/Asia Pacific Heart Rhythm Society (APHRS)/Latin American Heart Rhythm Society (LAHRS) expert consensus statement on catheter and surgical ablation of atrial fibrillation



Syncope



Evaluation of Bradycardia and Conduction Disease



Abnormal testing

Table I Classification of abnormalities of the athlete's electrocardiogram

Group 1: common and training-related ECG changes	Group 2: uncommon and training-unrelated ECG changes
Sinus bradycardia	T-wave inversion
First-degree AV block	ST-segment depression
Incomplete RBBB	Pathological Q-waves
Early repolarization	Left atrial enlargement
Isolated QRS voltage criteria for left ventricular hypertrophy	Left-axis deviation/left anterior hemiblock
	Right-axis deviation/left posterior hemiblock
	Right ventricular hypertrophy
	Ventricular pre-excitation
	Complete LBBB or RBBB
	Long- or short-QT interval
	Brugada-like early repolarization

RBBB, right bundle branch block; LBBB, left bundle branch block.

Arrhythmia Clinic

- Suitable patients include those with a documented arrhythmia's.
- Also Ideal for patients with Afib looking for a curative approach.

Appointment (3-4hrs) includes:

- Arrhythmia CNS assessment
- ECG
- Bloods
- Echo
- Holter monitor
- Electrophysiologist Consultant Review – Prof Lyne, Dr Crinion or Dr Tuohy

How to contact the Clinic

- Dedicated Arrhythmia CNS phone number (Don Cachin) – 087 473 8082
- Referrals to Cardiologyadmin@beaconhospital.ie or via Healthlink

