

Management of Atrial Arrhythmia Detected in Heart Failure Patients with Cardiovascular Implantable Electronic Devices (HF-CIED)

**2016 KSC Annual Scientific Conference, Gyeongju
Arrhythmia Session 2, Apr 15, 2016, Rm 300C**

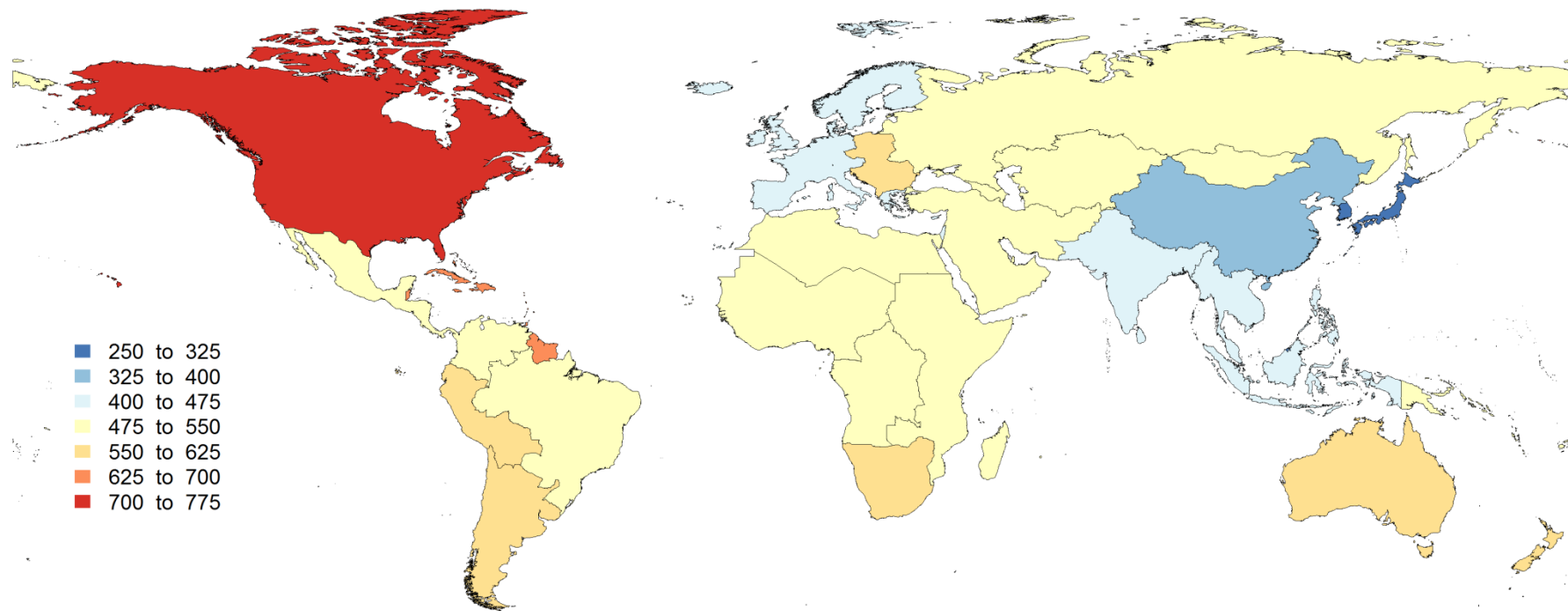
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Disclosures

None

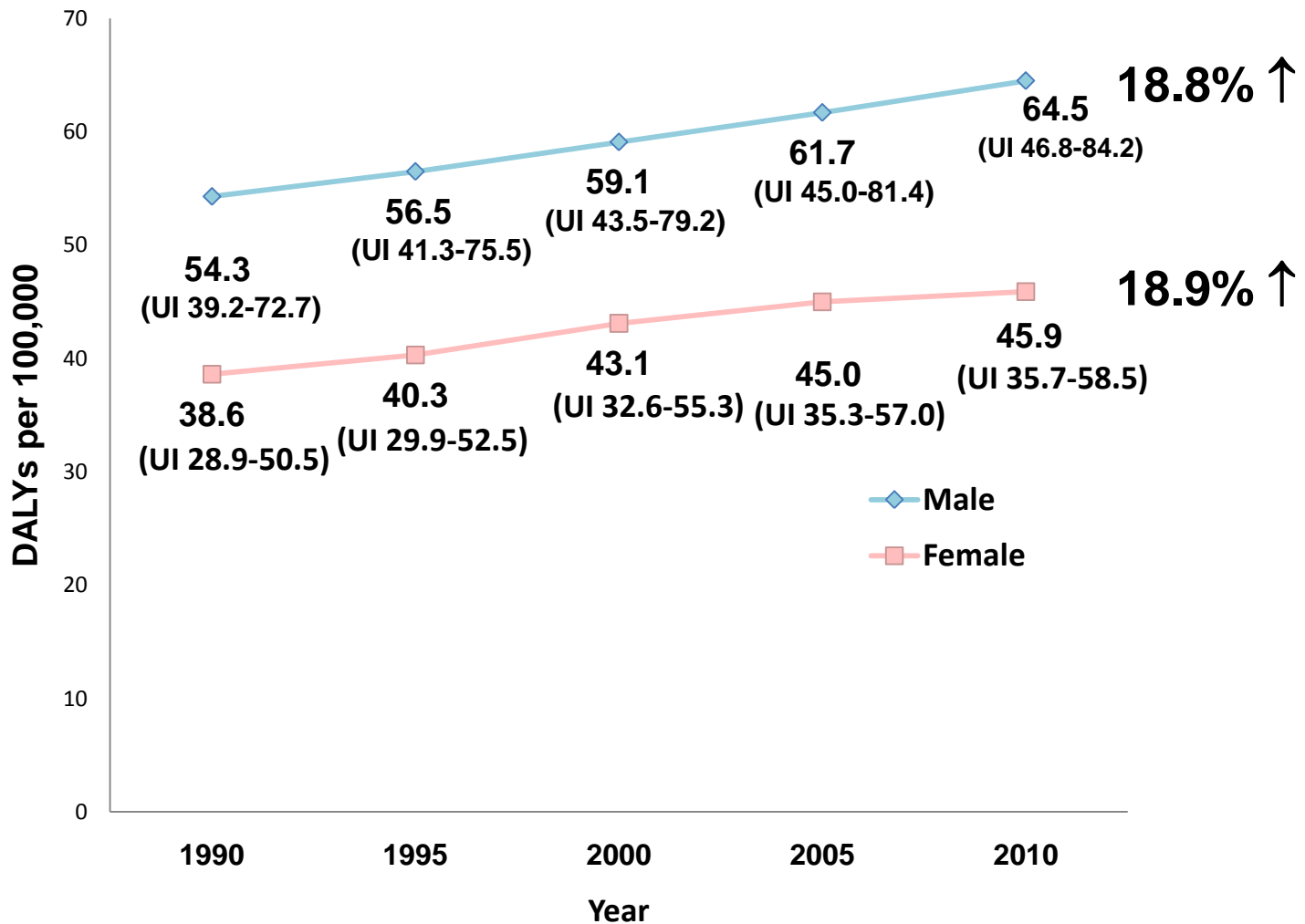
Global Prevalence of AF



- **33.5 million, 0.5% of world pop. affected**
- **Likely an underestimate**
- **Surveillance mostly in developed world (70%)**

AF Burden (DALYs)

Significant Increase



AF and Stroke

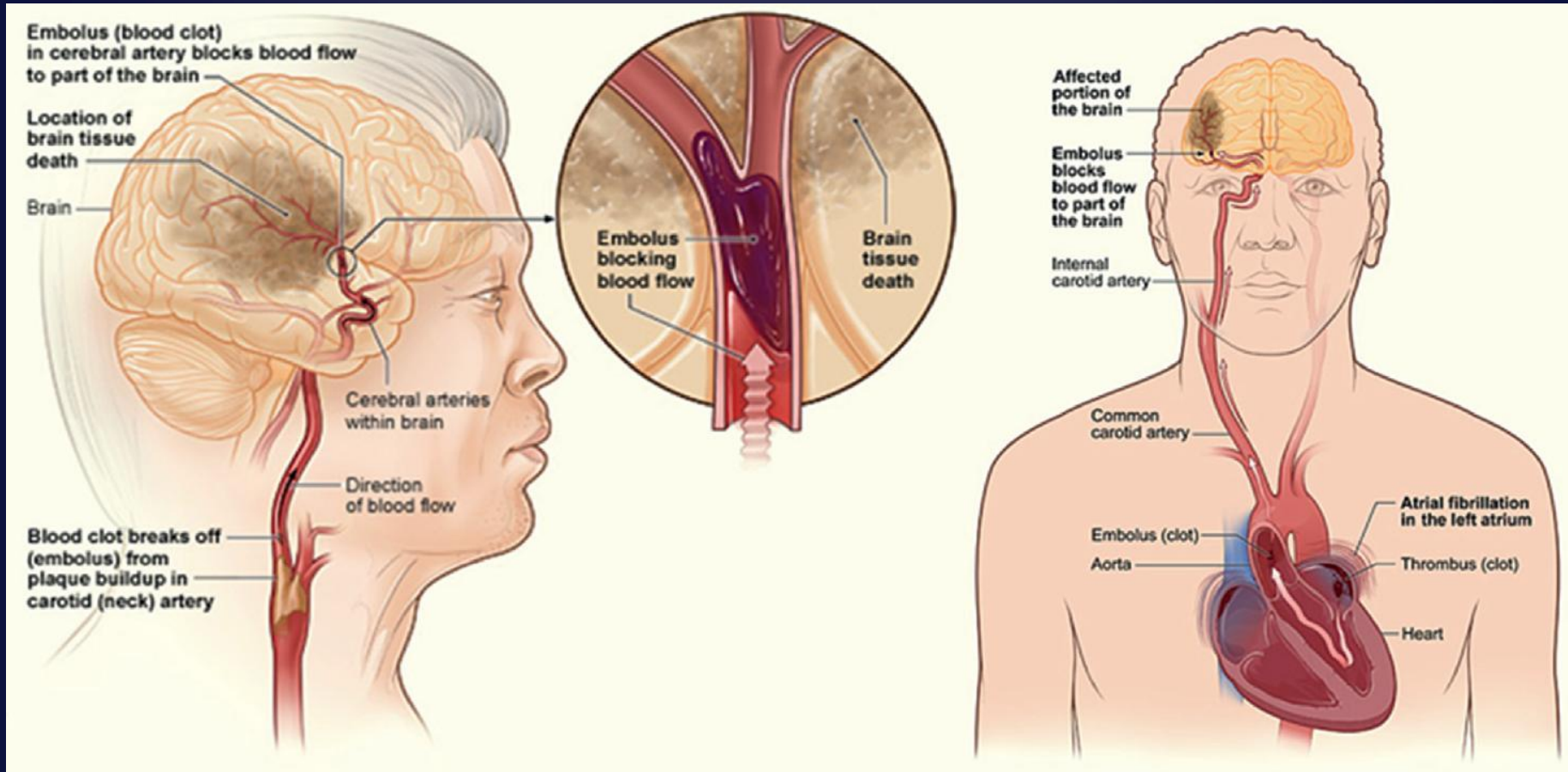
- Risk of stroke 5 times greater in patients with AF than those without
- When AF occurs in association with stroke
 - Higher mortality
 - Greater disability
 - Lower discharge rate home
 - 15% risk of stroke recurrence within 1 year, if untreated



Wolf PA et al. Stroke 1991;22:983-8.

Lip GYH, Edwards SJ. Thromb Res 2006;118:321-33.

Mechanisms of Stroke in Atrial Fibrillation

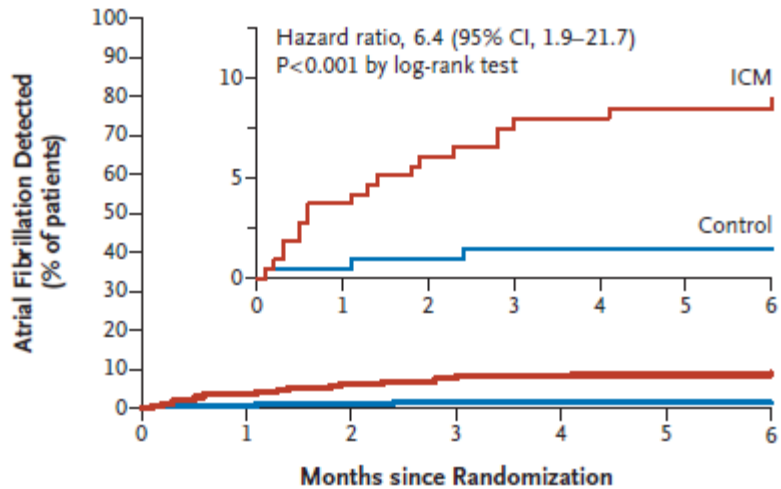


Silent Atrial Fibrillation

- **At least one-third of all AF patients**
- **Asymptomatic, diagnosed incidentally during routine physicals, pre-ops etc**
- **Ablation/drug suppression may convert symptomatic AF to asymptomatic AF**
- **Asymptomatic episodes of AF exceed symptomatic paroxysms by >12-fold**

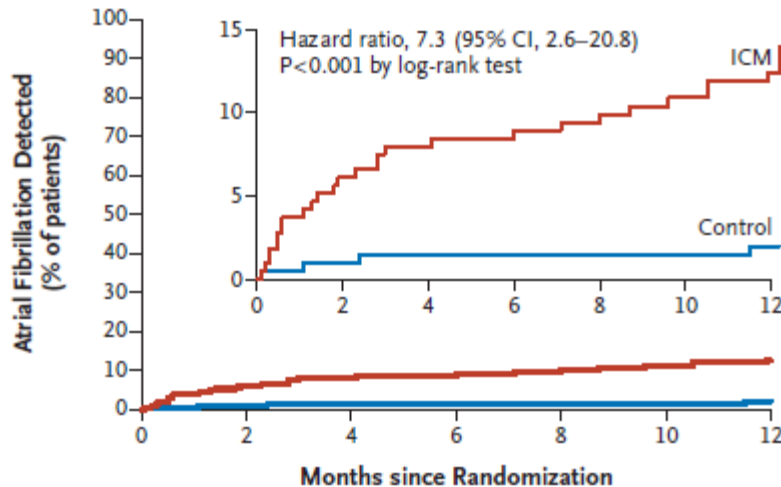
Crystal AF: Cryptogenic Stroke & Detection of AF

A Detection of Atrial Fibrillation by 6 Months



No. at Risk	0	1	2	3	4	5	6
Control	220	214	200	198	197	197	194
ICM	221	205	198	195	194	193	191

B Detection of Atrial Fibrillation by 12 Months

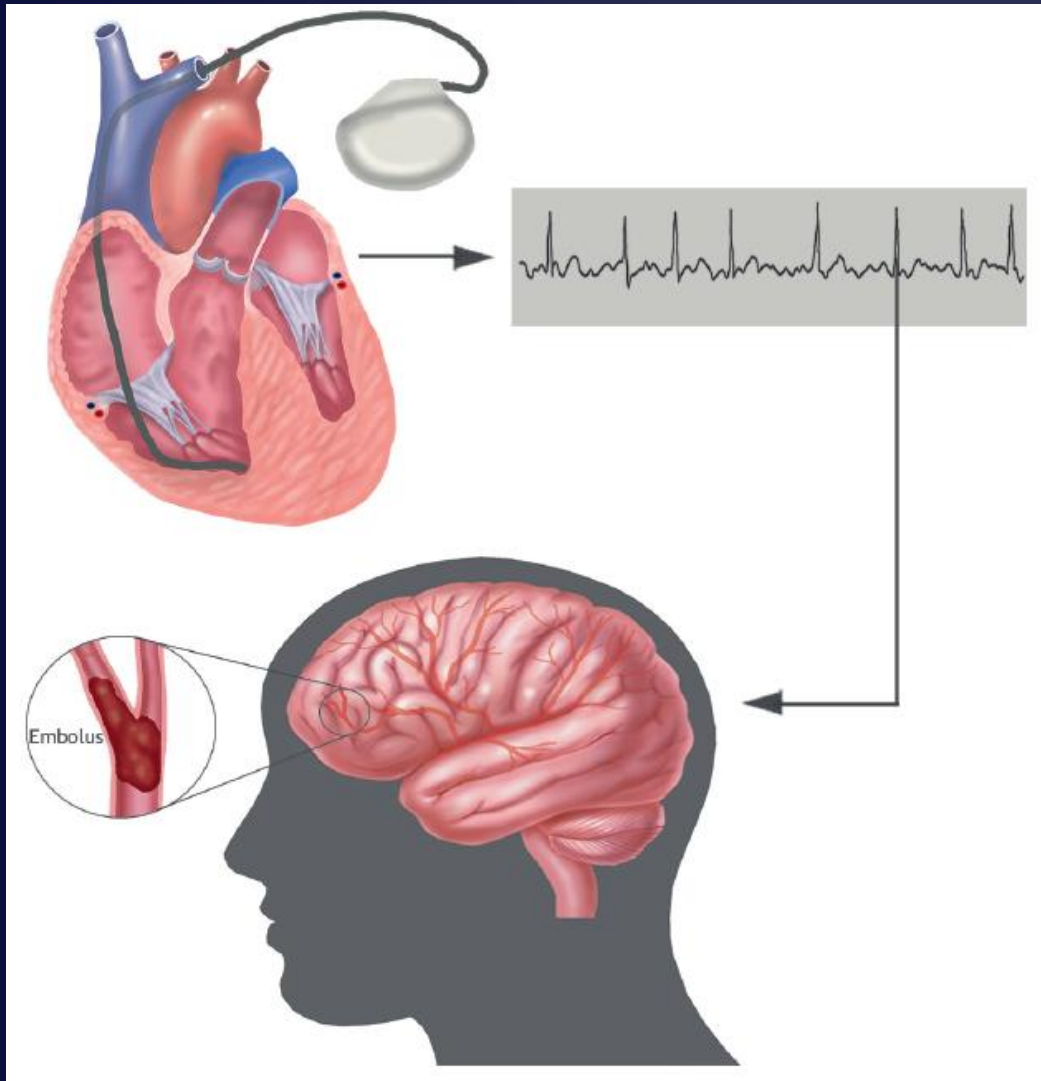


No. at Risk	0	2	4	6	8	10	12
Control	220	200	197	194	184	184	167
ICM	221	198	194	191	186	182	173

- N=441, randomized to Implantable loop recorder vs. conventional
- By 6 months 8.9% AF in ILR vs. 1.4%; by 1 yr 12.4 vs. 2%
- ECG monitoring with ILR superior to conventional follow-up for detecting AF after cryptogenic stroke

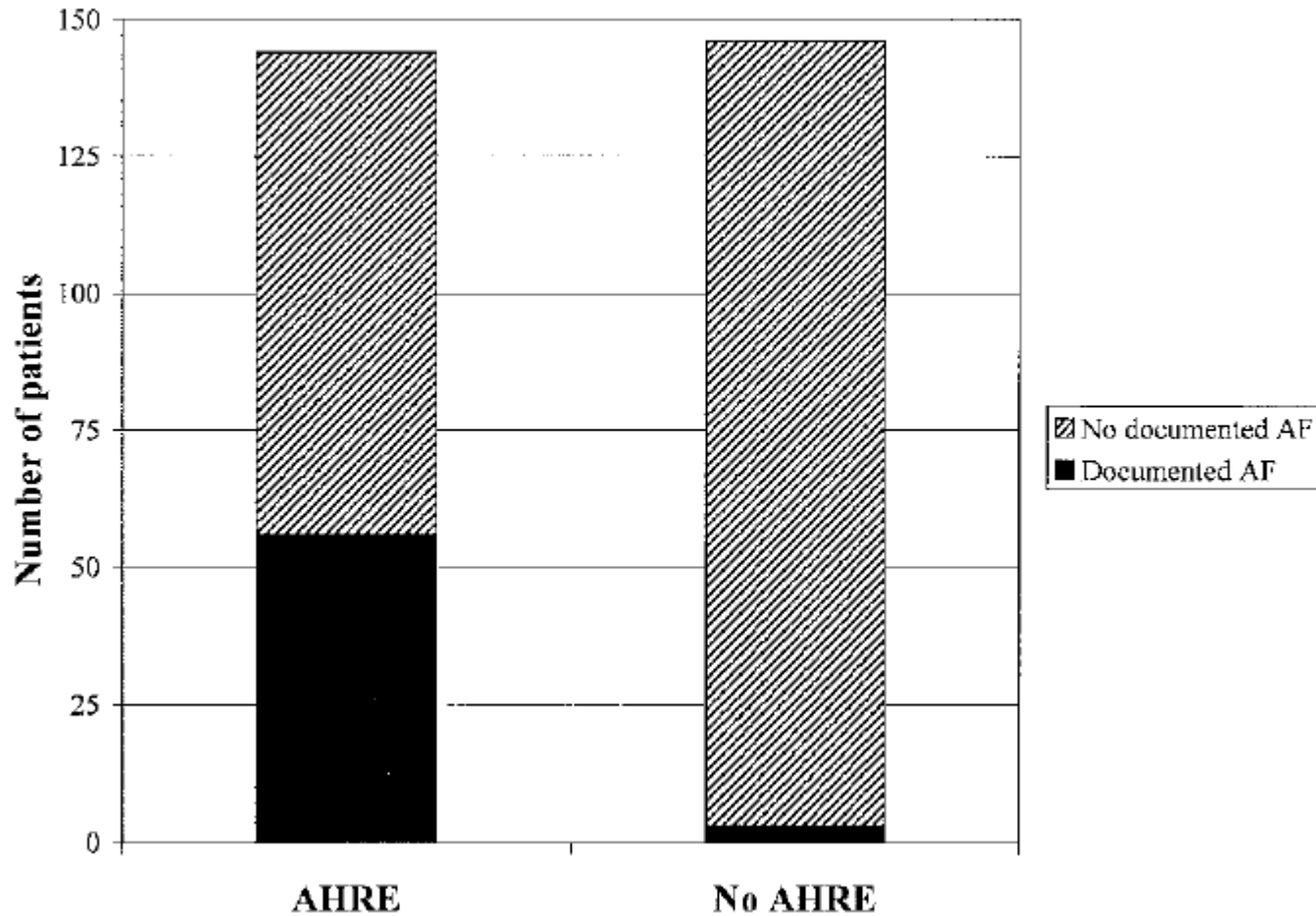
Sanna T, et al. NEJM 2014

Detection of Atrial Fibrillation by CIED & Potential Risk For Stroke



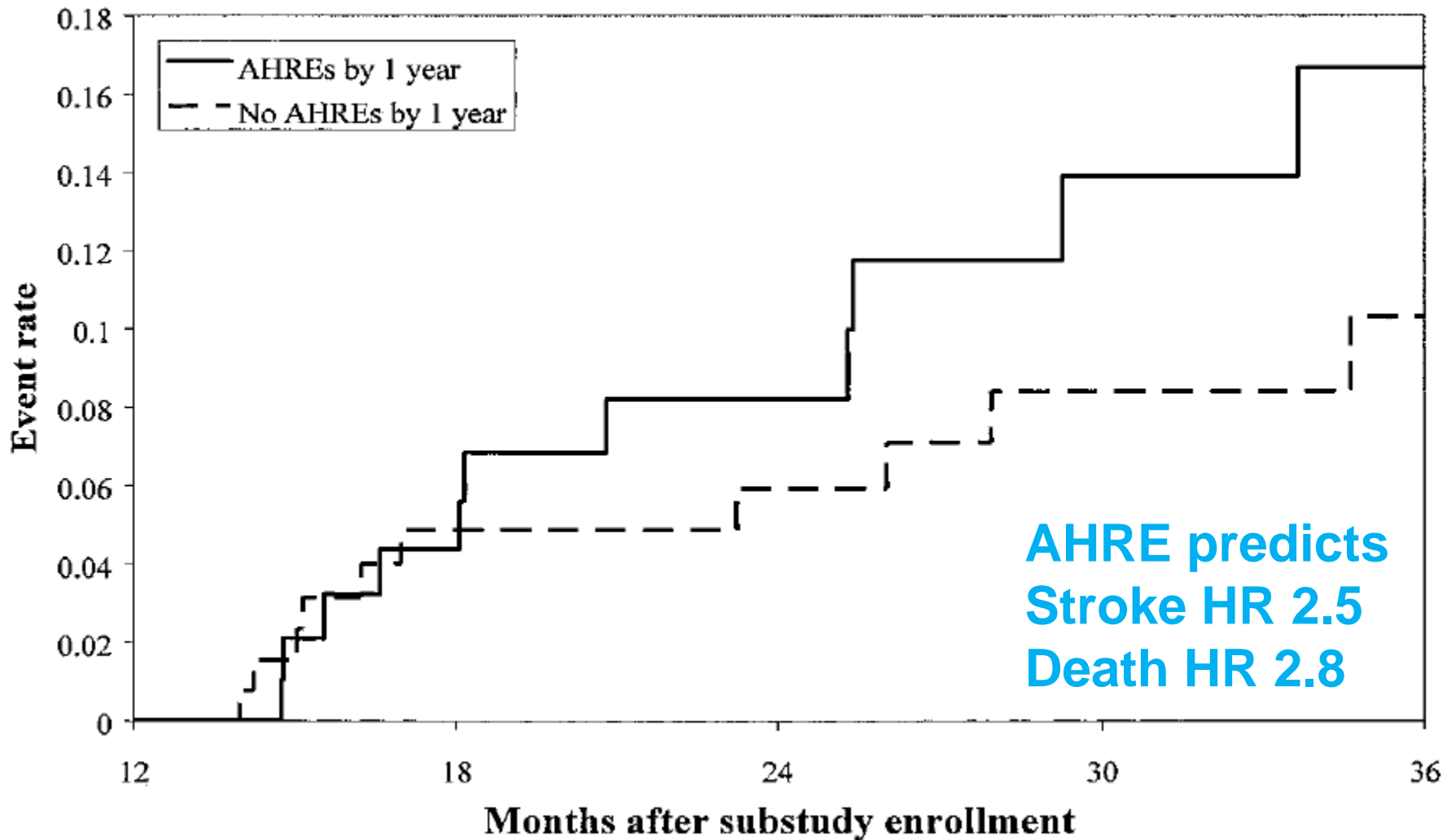
- Typically report “atrial high-rate events” (AHRE)
- AF, AFL or AT, not necessarily discernible
- High-rate episodes 10% to 28% of patients with no prior history of AF

M.O.S.T. Sub-study: Documented AF Higher with AHRE (39% vs. 2%)



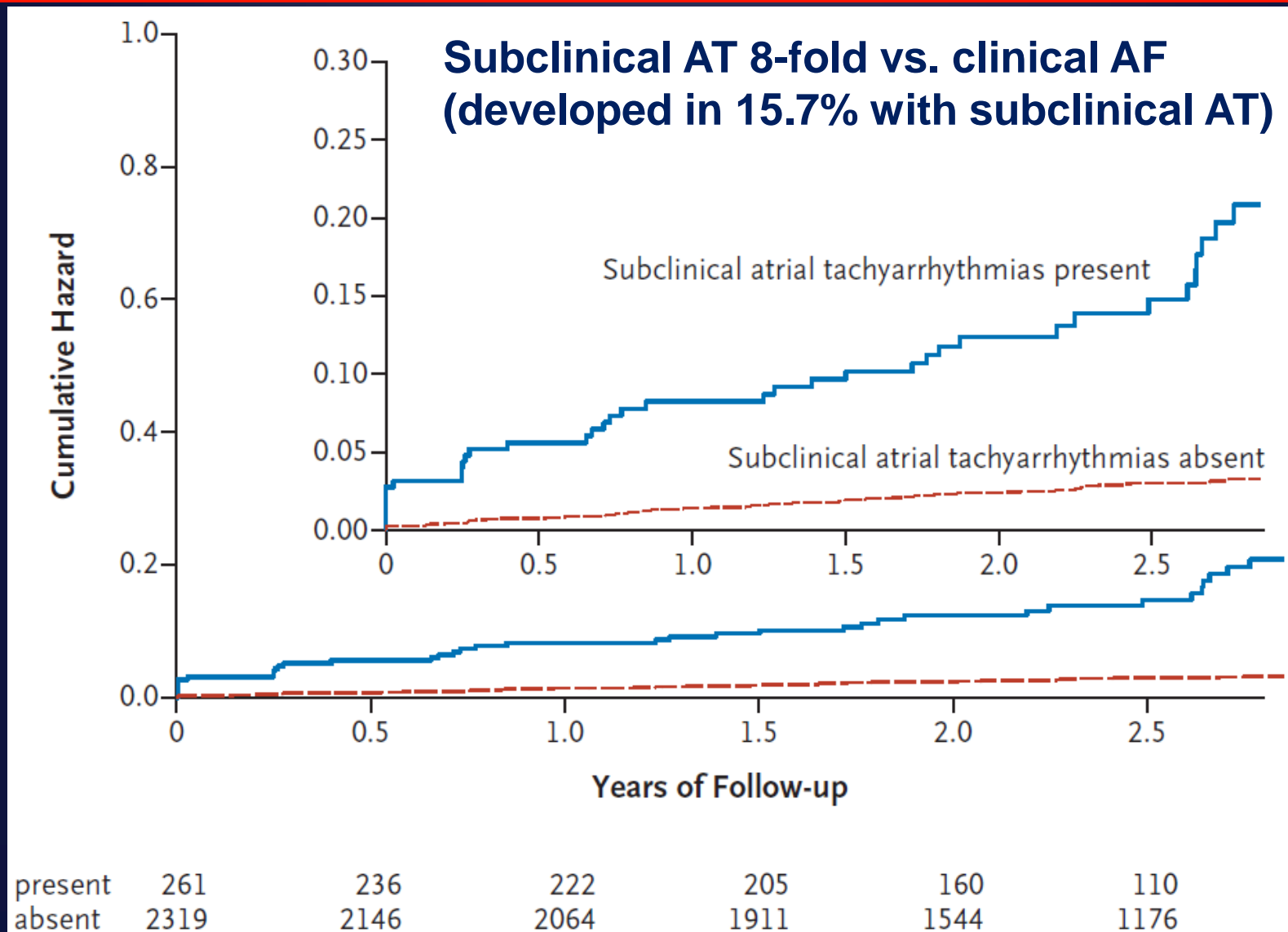
**AHRE
predicts
AF, H.R. = 6**

MOST: Risk of Stroke/Death Higher with AHRE

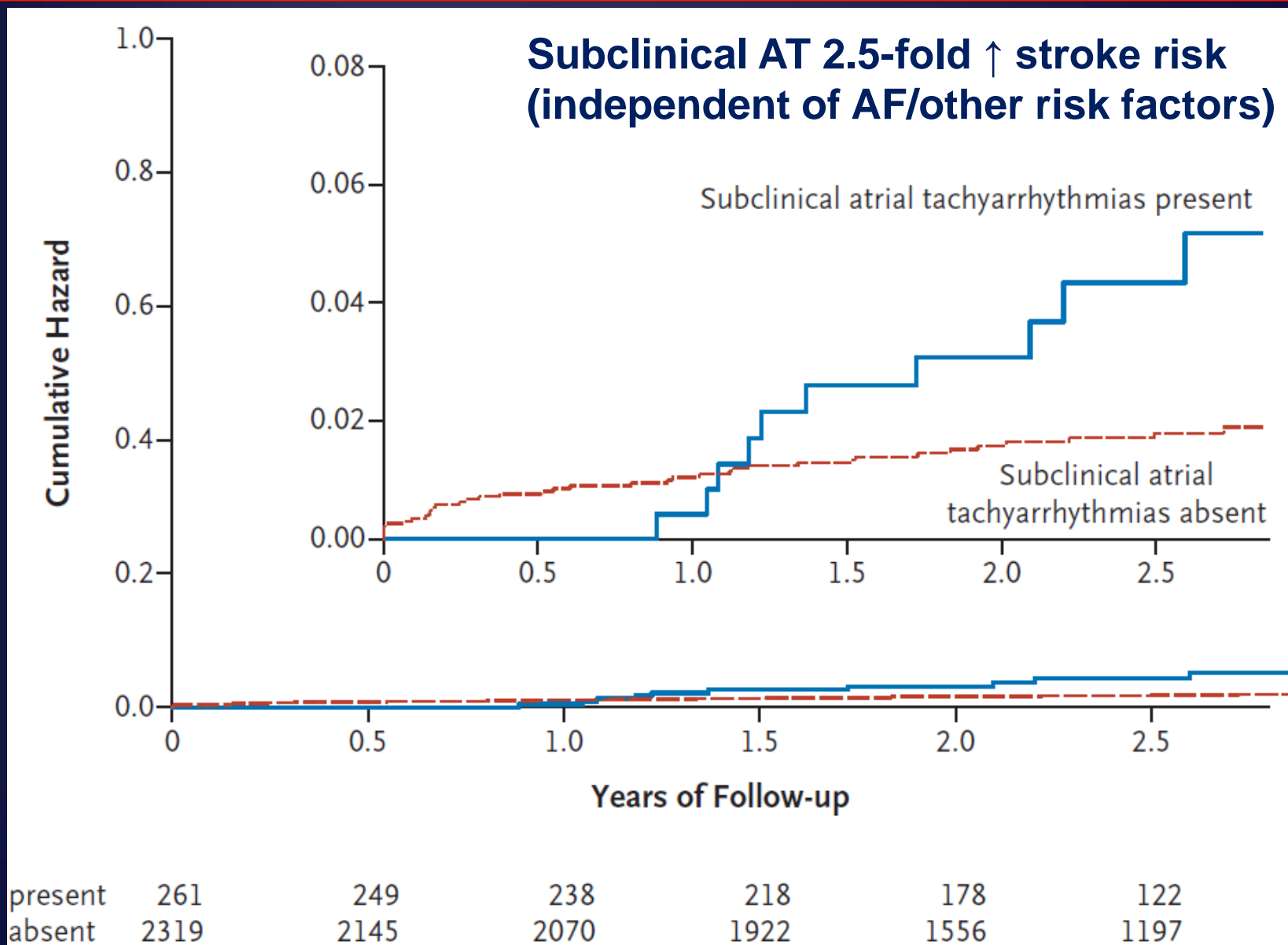


ASSERT: Prospective, Patients Without Known AF

AHRE (>190/min, >6 min) ↑ Risk of Clinical AT



ASSERT: ↑ Risk of Ischemic Stroke/Syst. Embolism



AHRE in CHF: High risk of Thromboembolic Events

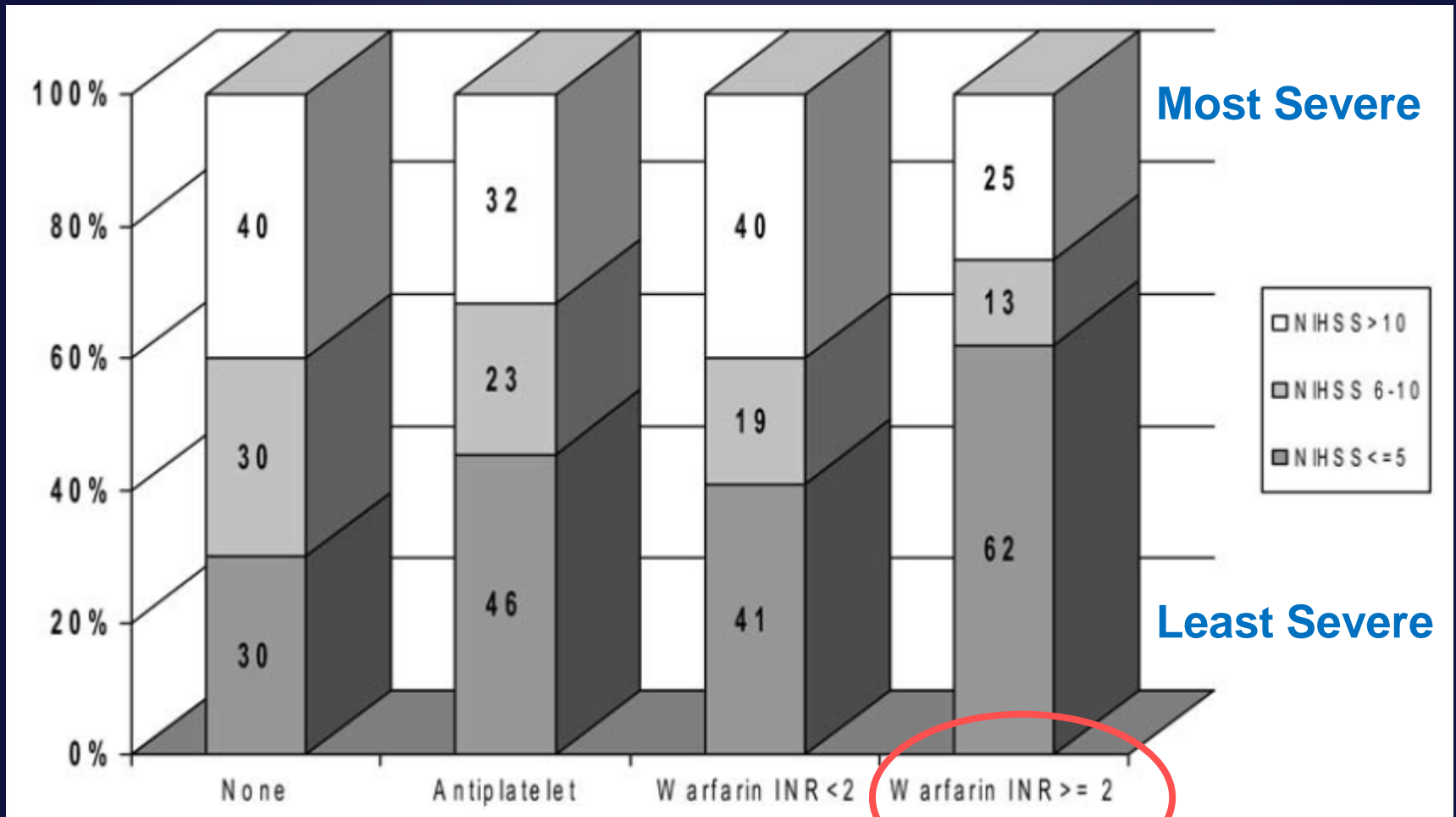
- Home monitoring in **560 pts**
- HF-CRT (2 trials, 67y, median EF 27%)
- AHRE = (>180 bpm and 1% /day) or 14 min
- 1 yr f/u **AHRE 40%; total 2% TE, 4.3% death**
- **AHRE >3.8 hr 9-fold ↑ risk of TE (vs. no AHRE)**
- **Risk of TE event same for AHRE and AF**

2014 AHA/ACC/HRS Guideline for the Management of Patients With Atrial Fibrillation

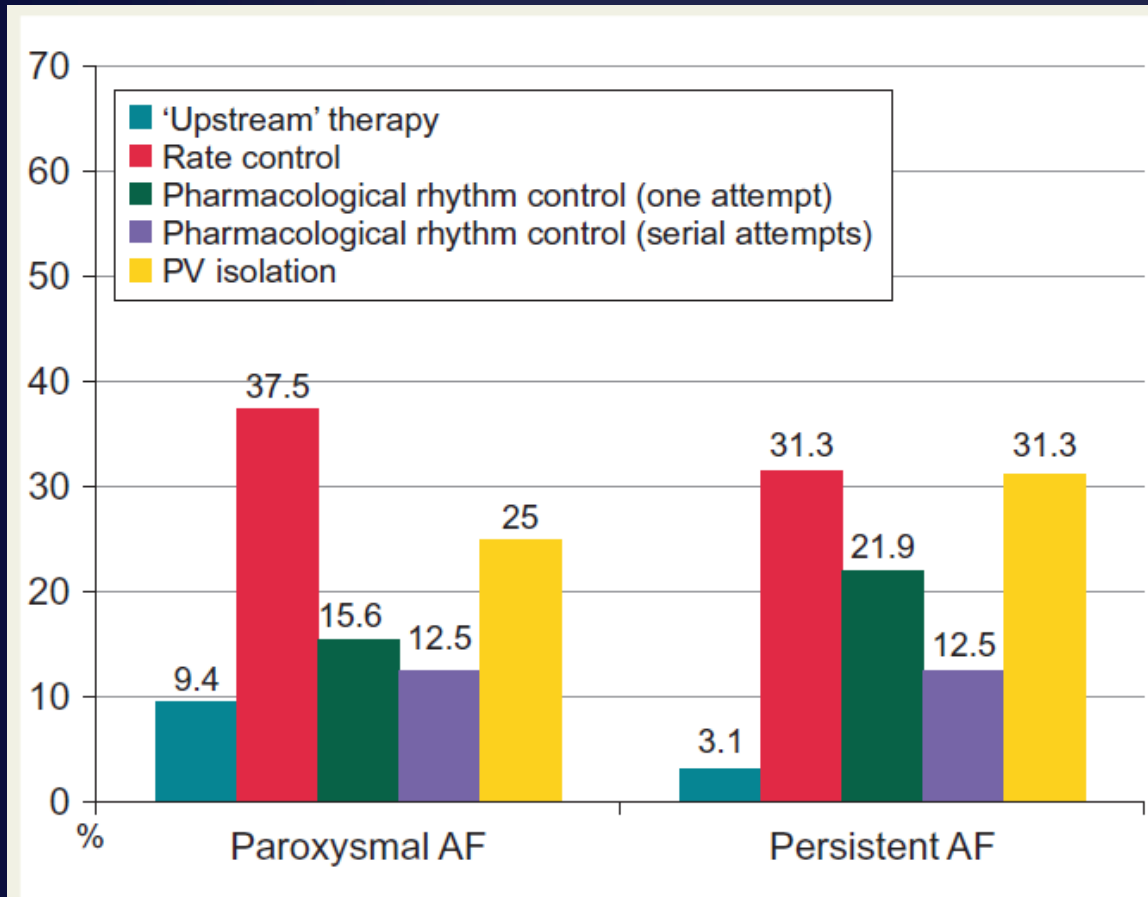
“Additional studies are needed to further clarify the relationship between stroke risk and AHRE detected by implanted devices and to define key characteristics of atrial high-rate episodes in patients who warrant further investigation or potentially therapy.”

Effective Anticoagulation Decreases Stroke Severity and Prolongs Survival (N=1938, 17% AF)

Anticoagulation impacts CVA prevention + severity



Current practice for diagnosis and management of silent atrial fibrillation: results of the European Heart Rhythm Association survey



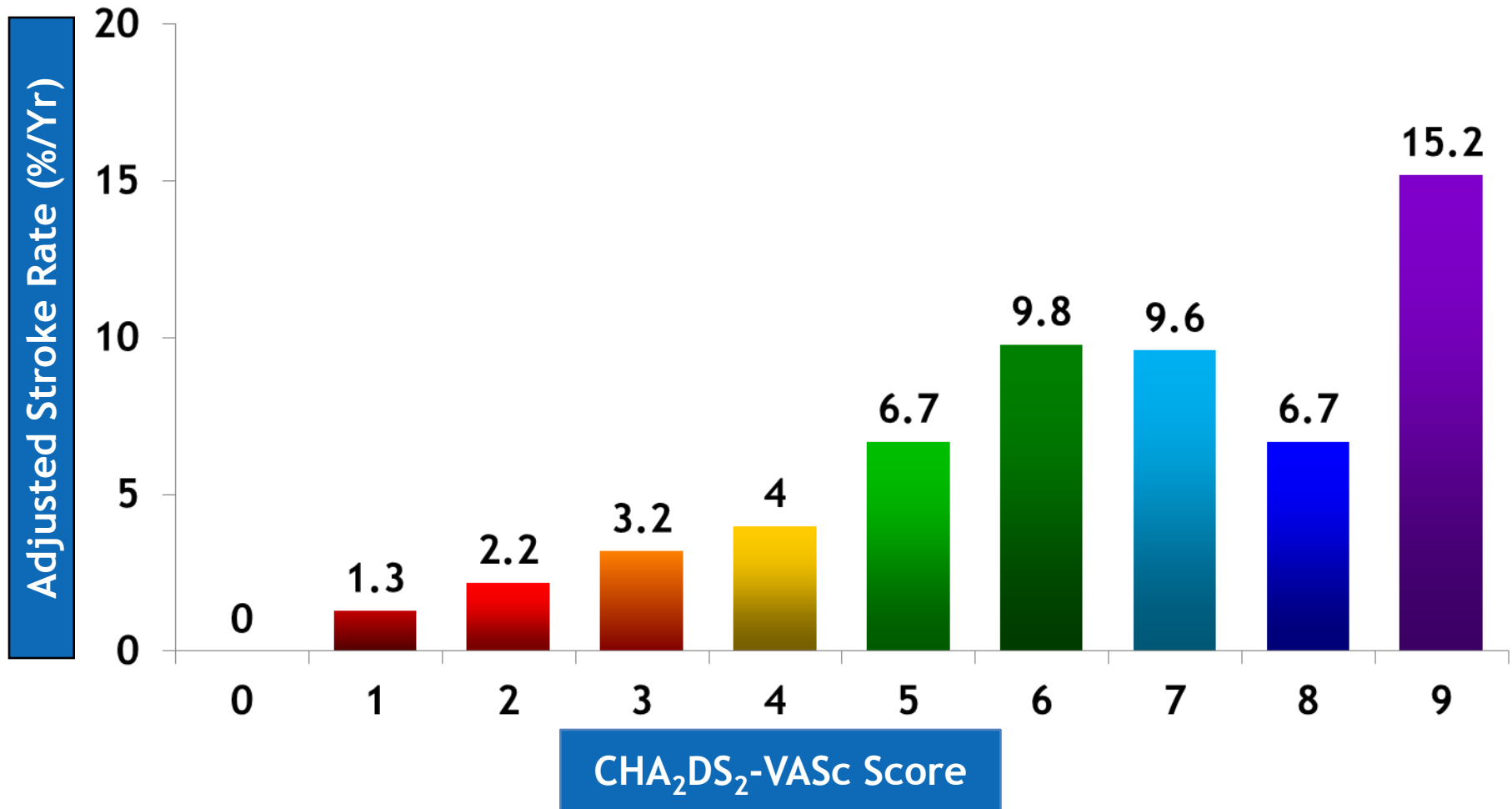
- **No Consensus regarding screening or Rx**
- **However majority (78%) would anticoagulate**

CHA₂DS₂-VASc Score

Risk Factor	Score
C ongestive heart failure/LV dysfunction	1
H ypertension	1
A ge ≥75 yr	2
D iabetes mellitus	1
S troke/TIA/thromboembolism	2
V ascular disease*	1
A ge 65-74 yr	1
S ex c ategory (i.e., female sex)	1
Maximum Score	9

*Prior MI, PAD, aortic plaque. Actual rates of stroke in contemporary cohorts may vary from these estimates.

Adjusted Stroke Rate According to CHA₂DS₂-VASc Score



Atrial Arrhythmia in CHF Detected by CIED

Conclusions

- **May not be justifiable to hold anticoagulation in future randomized trials**
- **Ethical issue- no “clinical equipoise”**
- **Device diagnostics provide novel, early Dx**
- **Once AF detected, regardless of the mode, anticoagulation should be initiated if indicated by the CHA2DS2-VASc score**

QUESTIONS?

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