8th Annual Emirates Cardiac Society Conference

ACC Middle East Conference 2017

DUBAI

OCTOBER 19 – 21, 2017

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كليفلاند كلينك أبوظبي
Cleveland Clinic Abu Dhabi
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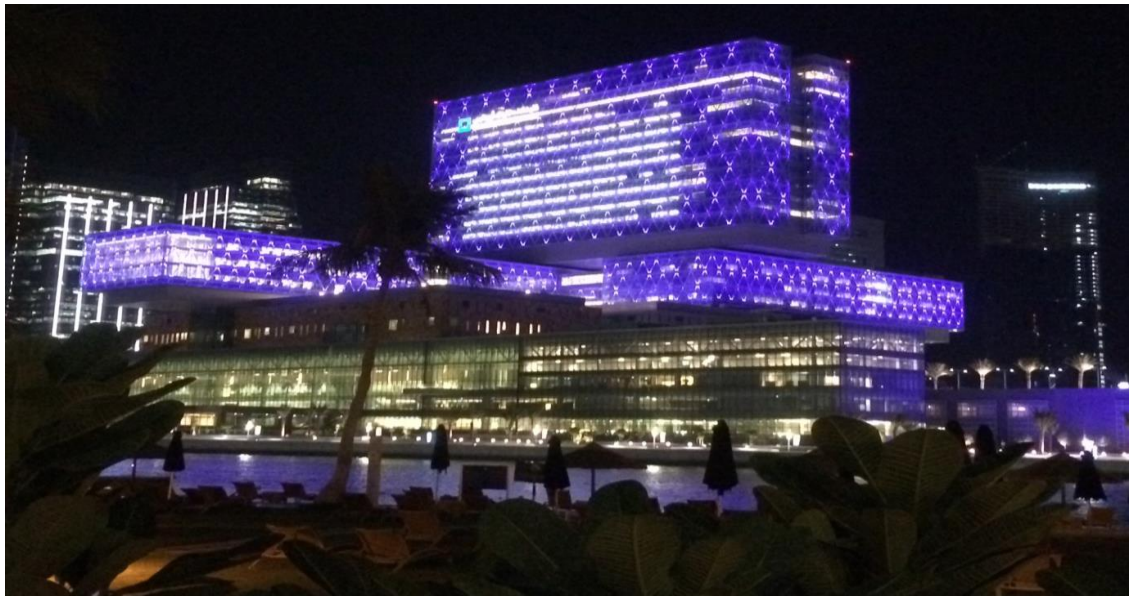
Current Detection & Diagnosis of Atrial Fibrillation



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Disclosure Slide

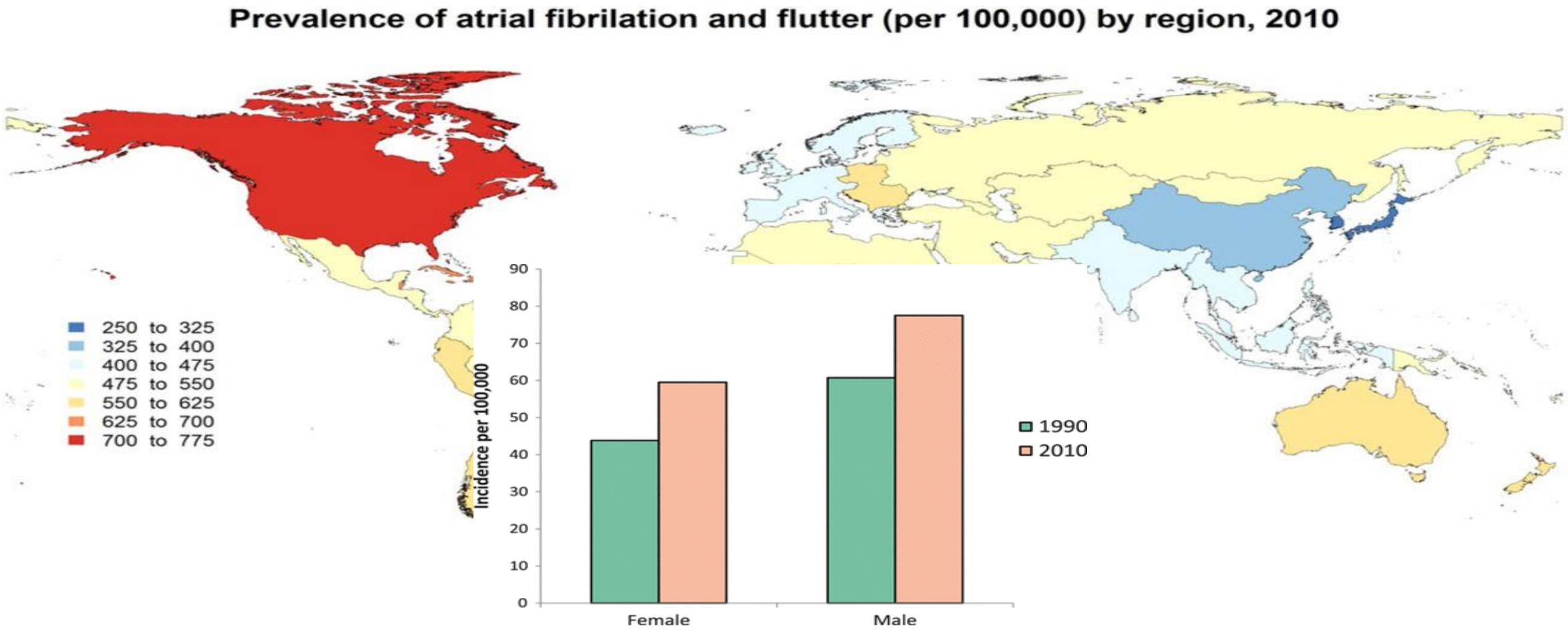
- **No relevant disclosures related to this presentation**

Learning Objectives

Upon completion of this activity, participants should be able to …

- **Identify** the drastic changes in AF diagnostic and treatment options over past two decades
- **Identify** the current diagnostic tools for detection and follow-up of atrial fibrillation

Prevalence of AF Worldwide



Chugh S. et al, Circulation, February 2014

Estimated Lifetime Risk of AF to Age 95

Lifetime Risk for Development of Atrial Fibrillation

The Framingham Heart Study

Donald M. Lloyd-Jones, MD, ScM; Thomas J. Wang, MD; Eric P. Leip, MS; Martin G. Larson, ScD; Daniel Levy, MD; Ramachandran S. Vasan, MD; Ralph B. D'Agostino, PhD; Joseph M. Massaro, PhD; Alexa Beiser, PhD; Philip A. Wolf, MD; Emelia J. Benjamin, MD, ScM

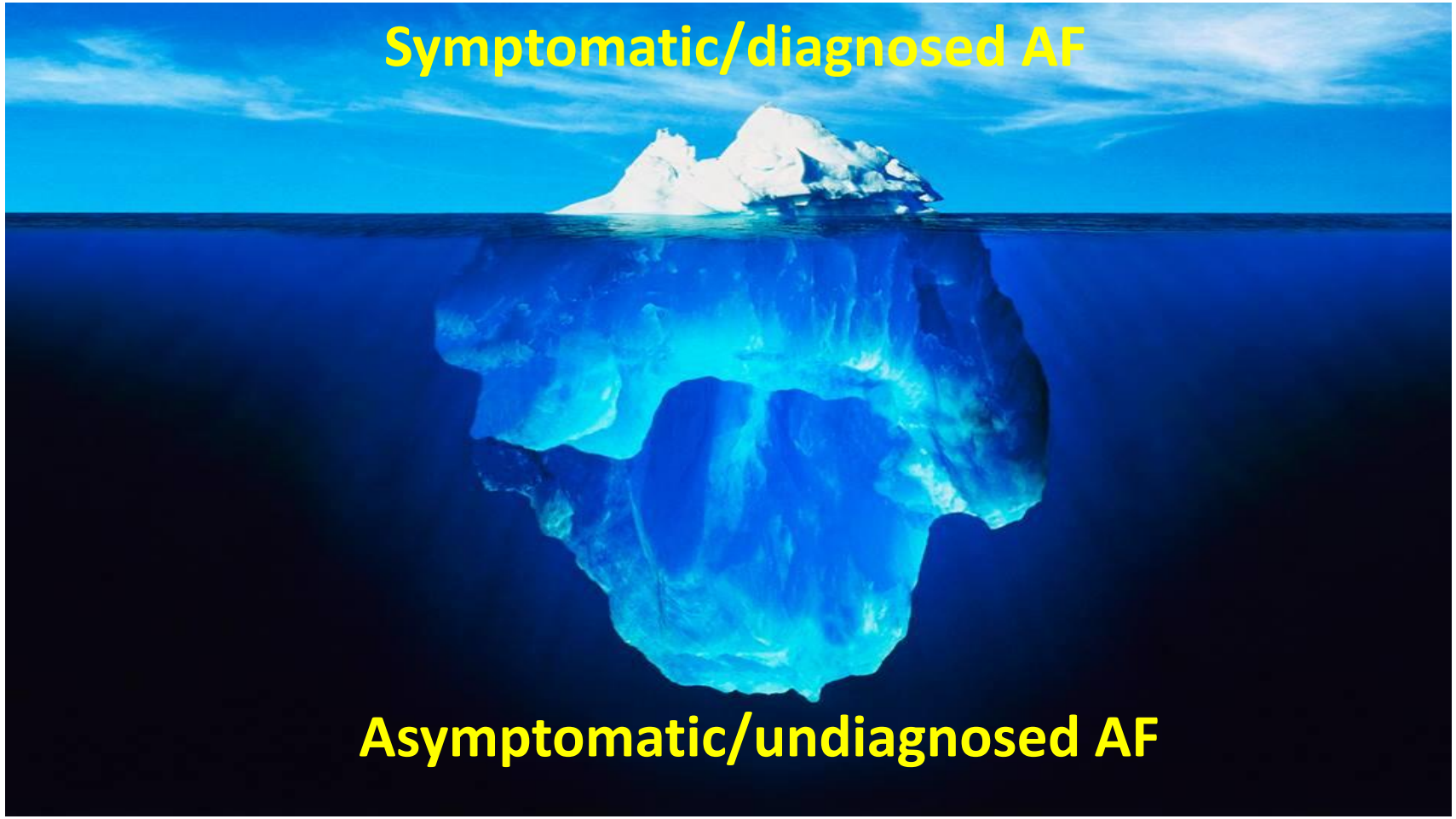
TABLE 2. Lifetime Risk for AF at Selected Index Ages by Sex

Index Age, y	Men	Women
40	26.0 (24.0–27.0)	23.0 (21.0–24.0)
50	25.9 (23.9–27.0)	23.2 (21.3–24.3)
60	25.8 (23.7–26.9)	23.4 (21.4–24.4)
70	24.3 (22.1–25.5)	23.0 (20.9–24.1)
80	22.7 (20.1–24.1)	21.6 (19.3–22.7)

All values are percentages.

Lloyd-Jones D. et al, Circulation, August 2004

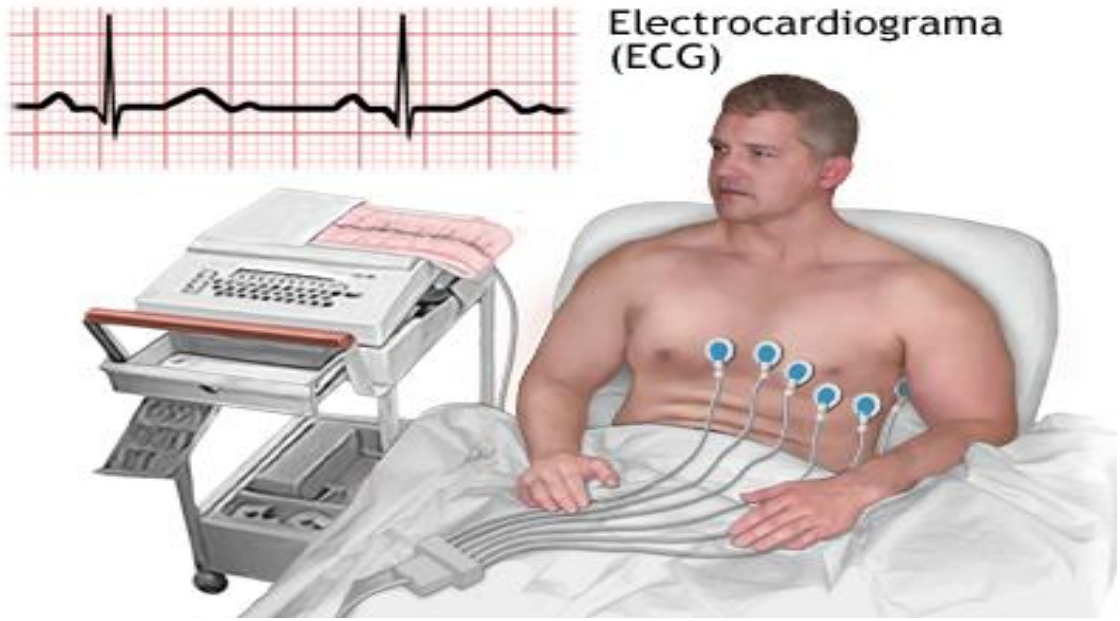
Tip of The Iceberg

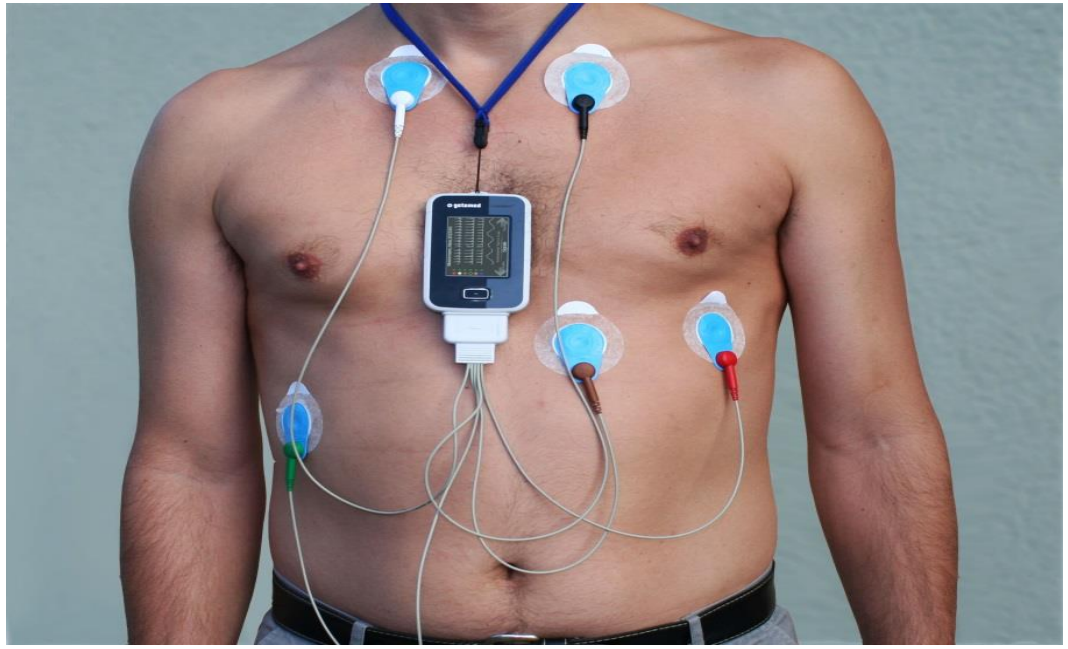


Cryptogenic Stroke

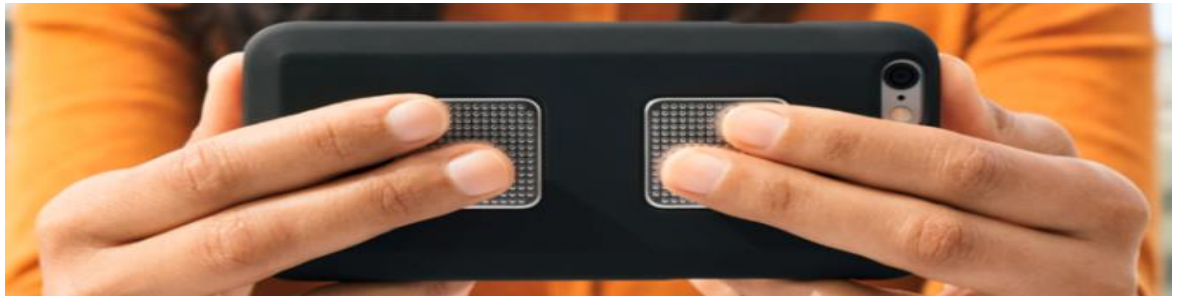
- About 15% of strokes are attributed to documented AF, 50-60% to documented cerebrovascular disease
- The etiology of approximately 25-30% of ischemic strokes/TIA cases remains undetermined (undiagnosed AF is suspected of being a major contributor to this undetermined etiology).
- Due to the nature of AF, traditional monitoring methods with 12-lead ECG's and 24-72 Holter monitors frequently fail to document the presence of the arrhythmia.
- There are no standard recommended methods to document AF in such scenarios.

Diagnosis of AF - Classic Story





New Technology



Recorded: Monday, October 24, 2016 at 9:28:52 AM Kardia:
Heart Rate: 66 bpm Duration: 30s

Kardia

Enhanced Filter, Mains filter: 50Hz Scale: 25mm/s, 10mm/mV

Smartphone-based ECG monitor effective for diagnosing palpitations

May 5, 2016

SAN FRANCISCO —A smartphone-based ECG recorder was noninferior to an ambulatory event monitor for the diagnosis of palpitations, according to results of a prospective study presented at the Heart Rhythm Society Annual Scientific Sessions.

"The biggest takeaway from this study is how technology can literally diagnose palpitations," **Deepika Narasimha, MD,** of University at Buffalo, told *Cardiology Today*.

For monitoring heart palpitations, smartphone app provides comparable performance to 14-day event monitor

Patients in the University at Buffalo study found the AliveCor app "significantly easier to use" than ambulatory monitors

Circulation

HOME ABOUT THIS JOURNAL ALL ISSUES SUBJECTS BROWSE FEATURES RESOURCES

ORIGINAL RESEARCH ARTICLE

Assessment of Remote Heart Rhythm Sampling Using the AliveCor Heart Monitor to Screen for Atrial Fibrillation: The REHEARSE-AF Study

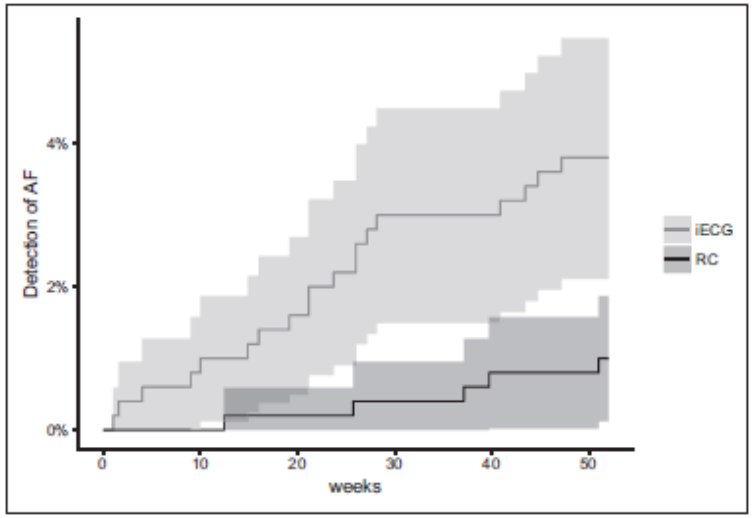


Figure 3. Kaplan-Meier plot showing the estimated detection probabilities for atrial fibrillation (AF) in each study arm over the 52 weeks of the trial.
Shaded areas represent 95% confidence regions. Log-rank *P*=0.004 (Mantel-Cox). RC indicates routine care.

Conclusion— Screening with twice-weekly single-lead iECG with remote interpretation in ambulatory patients ≥65 years of age at increased risk of stroke is significantly more likely to identify incident AF than RC over a 12-month period. This approach is also highly acceptable to this group of patients, supporting further evaluation in an appropriately powered, event-driven clinical trial.

Halcox J, Circulation; August 2017

theguardian

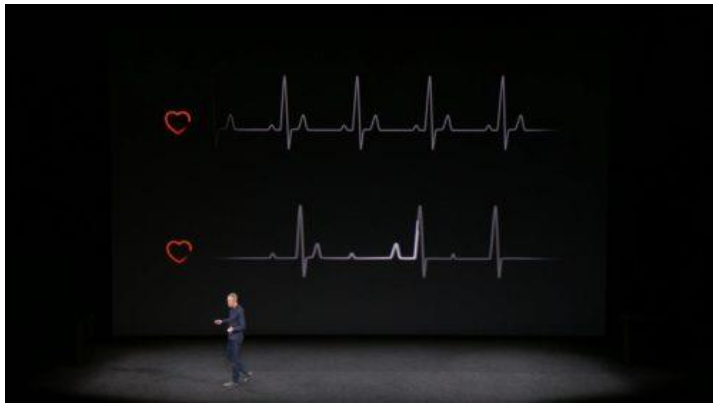
NHS to offer free devices and apps to help people manage illnesses

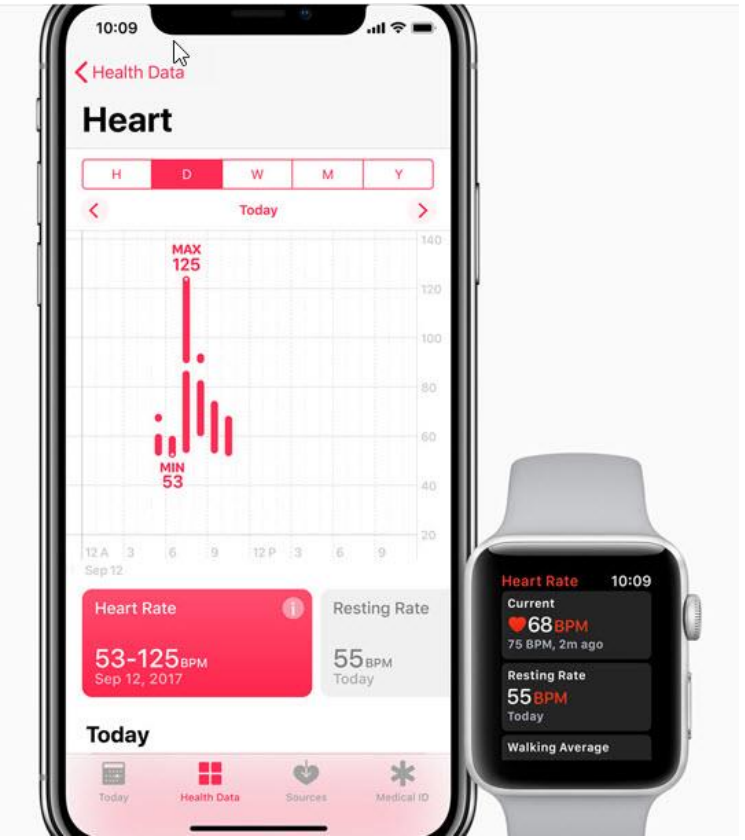
Health service seeks to use of technology to help patients manage conditions such as diabetes and heart disease

New heart monitors will be able to detect irregular rhythms that are a key cause of sudden cardiac death, which kills 100,000 people in the UK every year. Photograph: Graham Turner for the Guardian

HEALTH IT, PATIENT ENGAGEMENT

Apple upgrades heart monitoring tech to flag arrhythmias, adds new study with Stanford Medicine



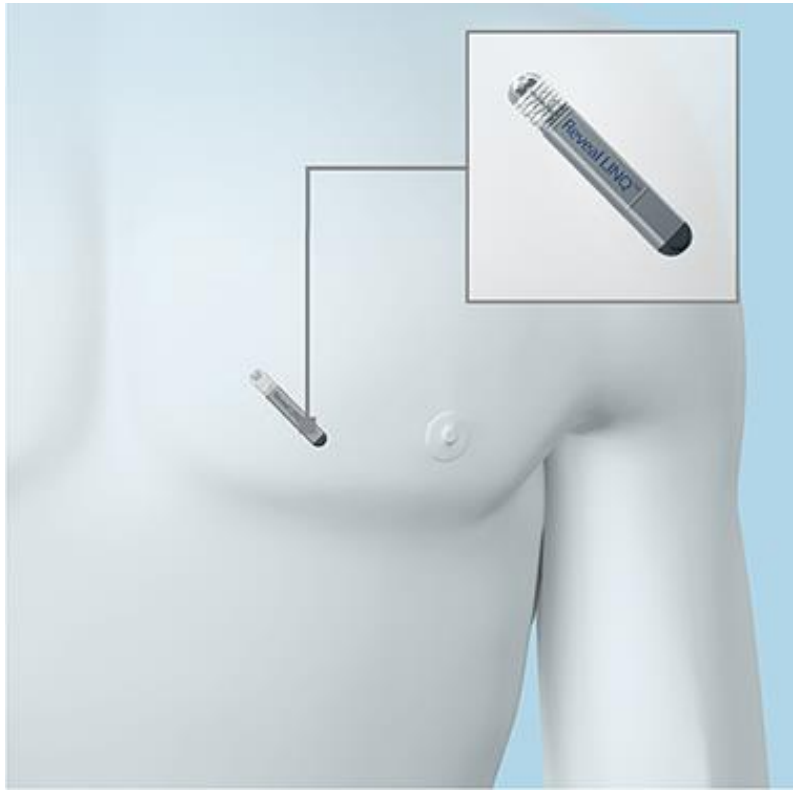


Implantable devices as diagnostic tools

- Implantable devices such as pacemakers, ICD's and implantable event recorders have provided us with a valuable tool to document AF that would have otherwise not been realized and to describe the relationship between such AF episodes/burden and stroke/TIA events.

- Such devices have very high accuracy level exceeding 95%

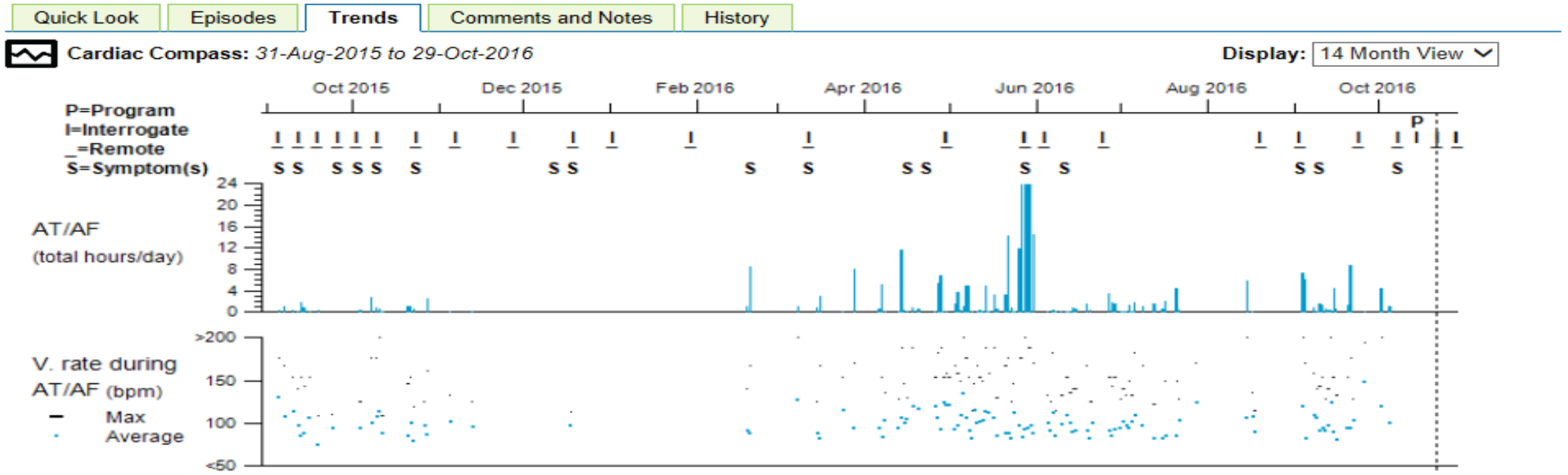
Implantable Cardiac Devices



Clinical Benefits of New Technology + Remote Monitoring

- Automatic early notification of changes in patient's clinical condition
- Such notifications allow for early clinical intervention
  - Atrial fibrillation management
  - Initiation of timely stroke prophylaxis

Case : Atrial Fibrillation



40 year old man with paroxysmal atrial fibrillation

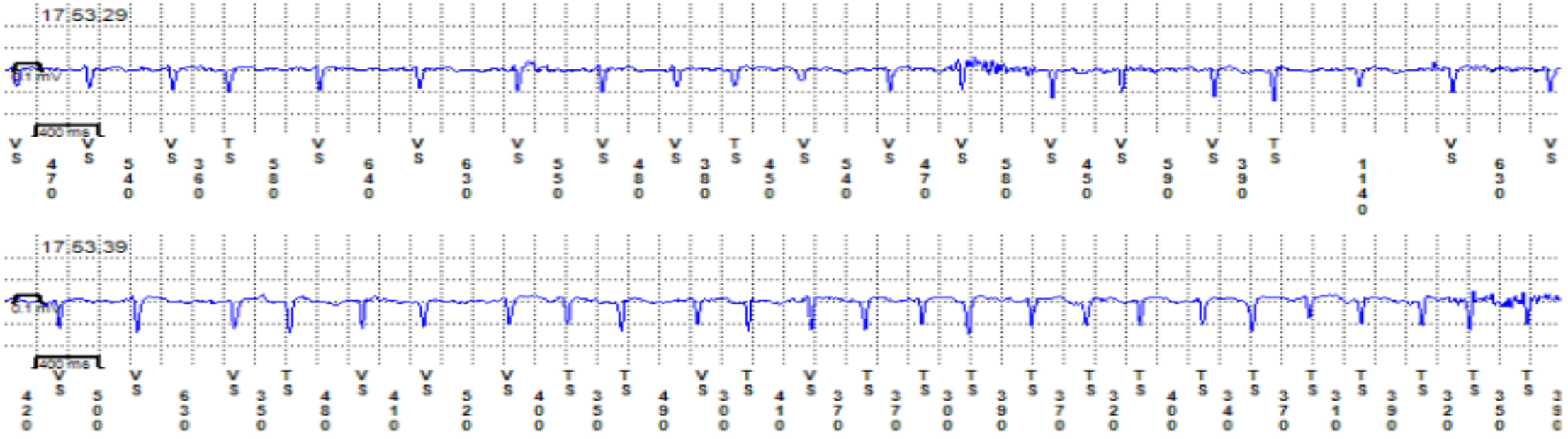
Quick Look | Episodes | Trends | Comments and Notes | History

Reveal LINQ™ LNQ11
Device Serial Number: RLA694498S

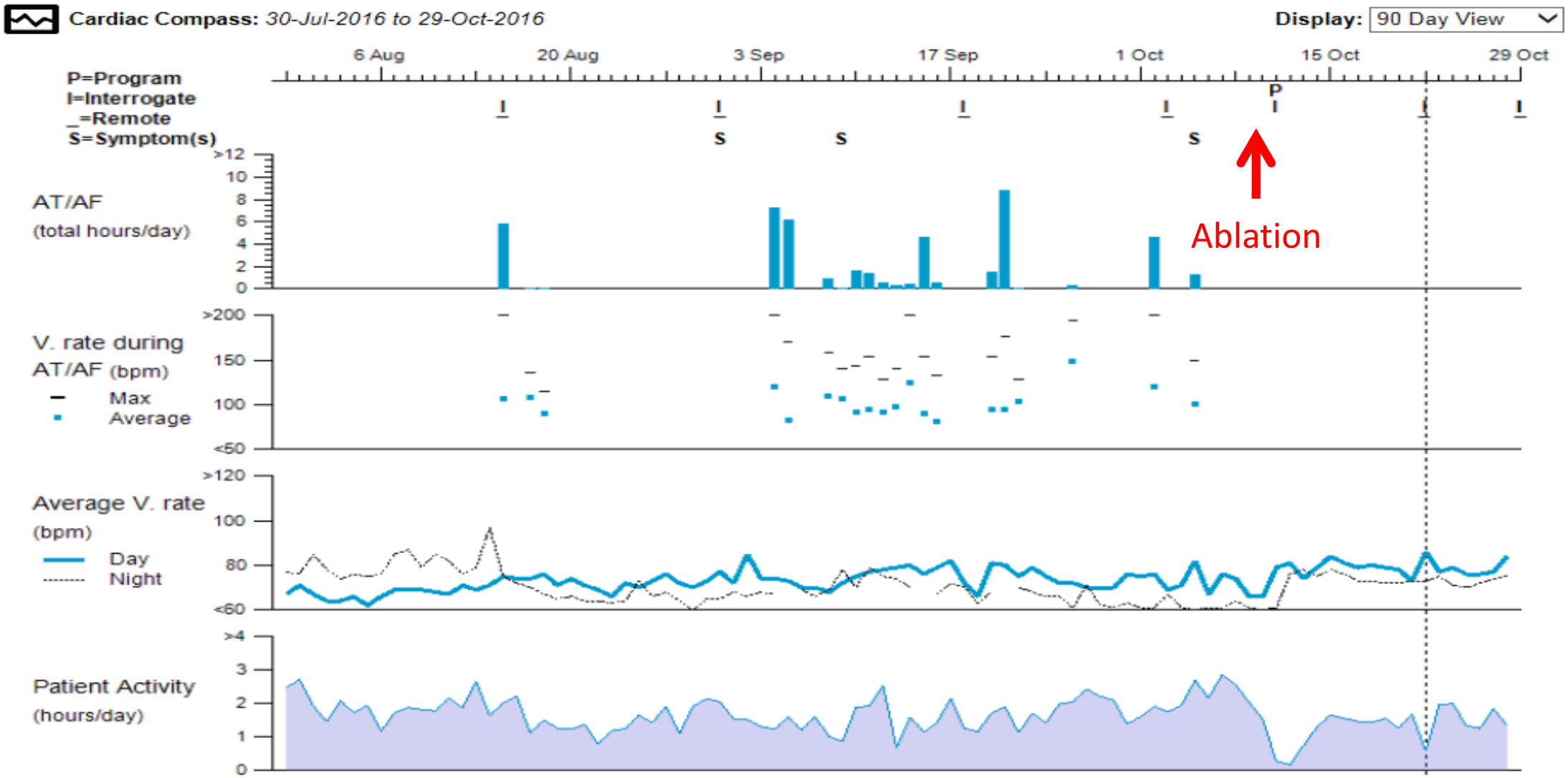
Reason for Monitoring: Suspected AF
Date of Implant: 17-Jun-2015

Battery Status OK

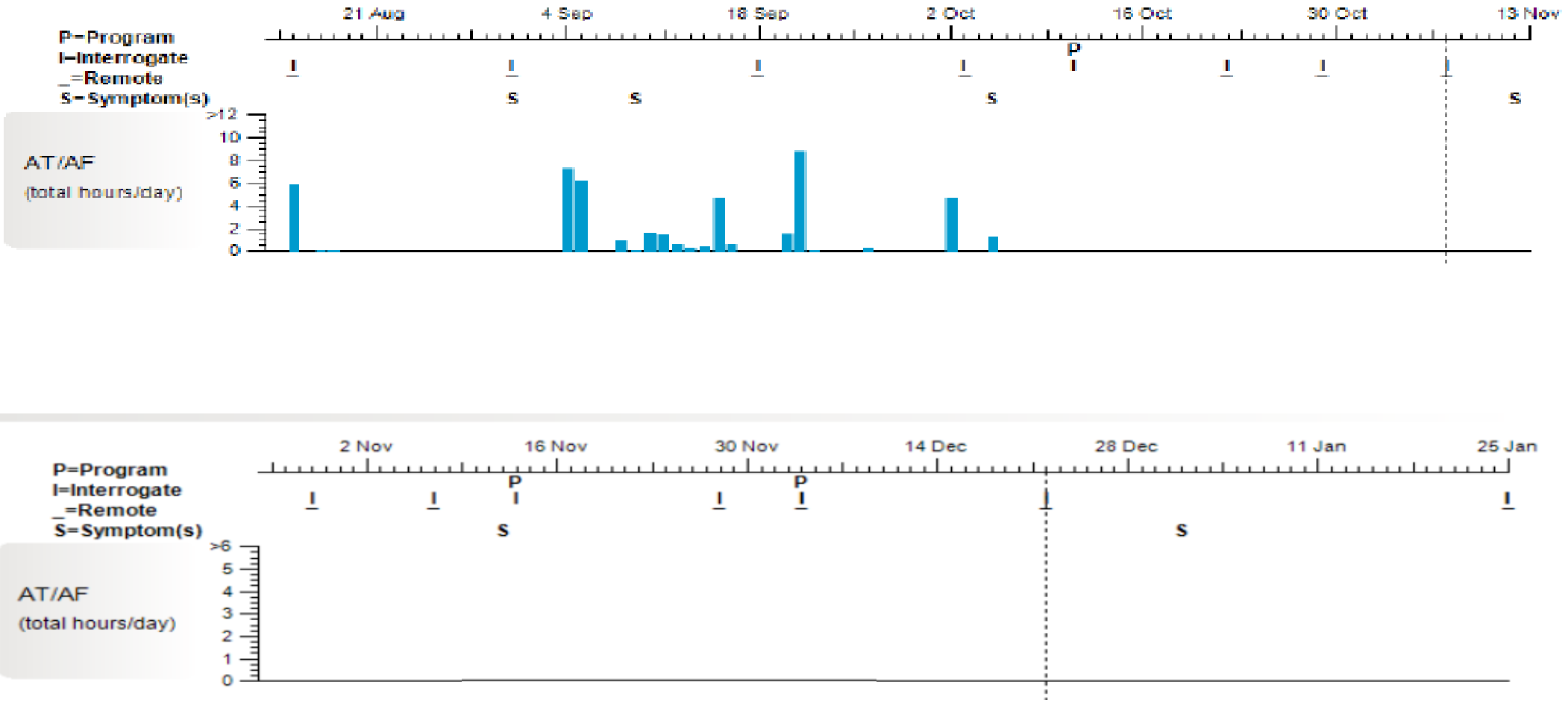
Counters	Since *29-Oct-2016 20:18*	Previous *22-Oct-2016 16:34 to 29-Oct-2016 20:18*	Lifetime
Symptom	0	0	72
Tachy	0	0	50
Pause	0	0	0
Brady	0	0	1
AT	0	0	0
AF	0	0	136
% of Time in AT/AF	0.0%	0.0%	5.7%



Case : Atrial Fibrillation

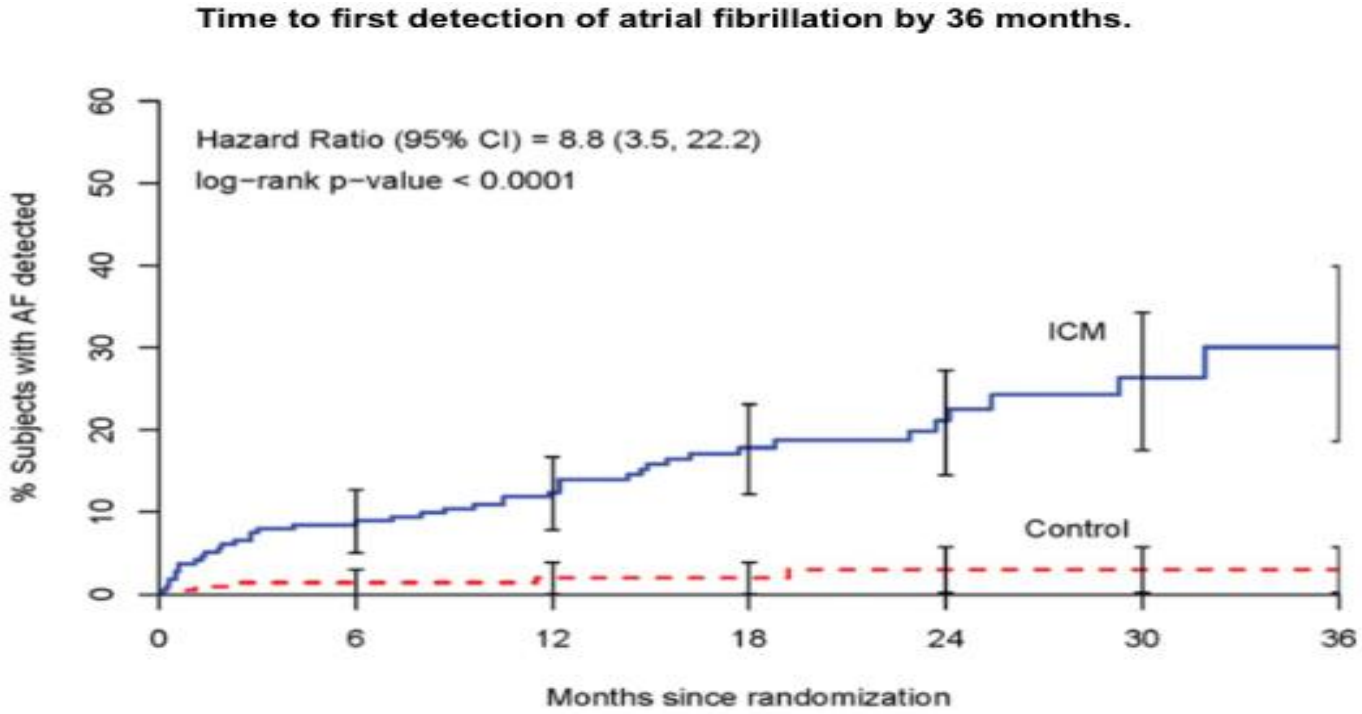


Case 1: Atrial Fibrillation



Crystal AF Study

A Comparison of Atrial Fibrillation Monitoring Strategies After Cryptogenic Stroke (from the Cryptogenic Stroke and Underlying AF Trial)



441 patients

Am J Cardiol 2015;116:889

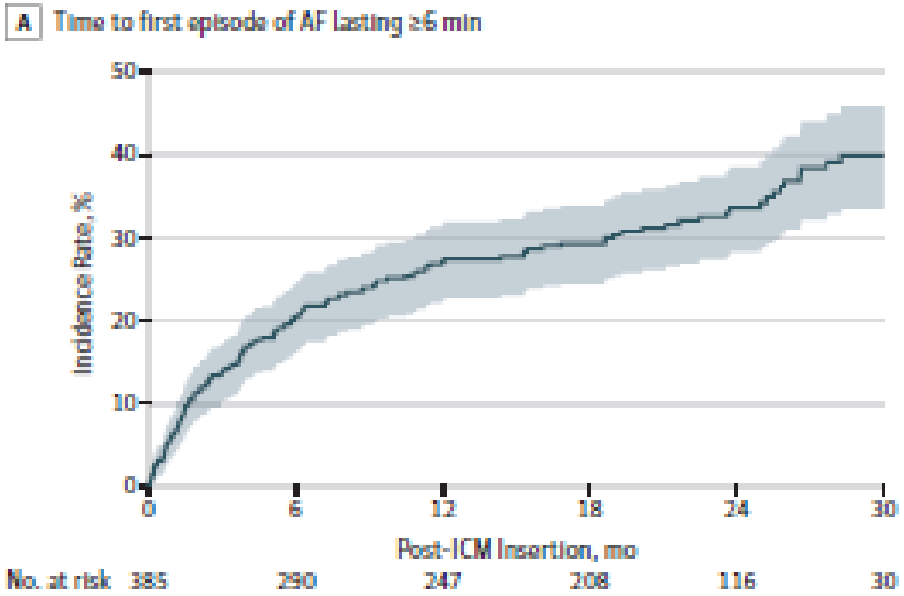
Crystal AF Findings

- ICM is superior to standard monitoring in detection of AF in patients with cryptogenic stroke
- AF was detected in 30% of patients at 36 months in the ICM arm
- 92% of patients with AF in the ICM arm had a day with greater than 6 minutes of AF
- Detection of AF changed anticoagulation management in 97% of patients

JAMA Cardiology | Original Investigation

Incidence of Previously Undiagnosed Atrial Fibrillation Using Insertable Cardiac Monitors in a High-Risk Population
The REVEAL AF Study

James A. Reiffel, MD; Atul Verma, MD; Peter R. Kowey, MD; Jonathan L. Halperin, MD; Bernard J. Gersh, MB, ChB, DPhil; Rolf Wachter, MD; Erika Pouliot, MS; Paul D. Ziegler, MS; for the REVEAL AF Investigators



Relationship between device detected AF and embolic events – ASSERT Trial

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

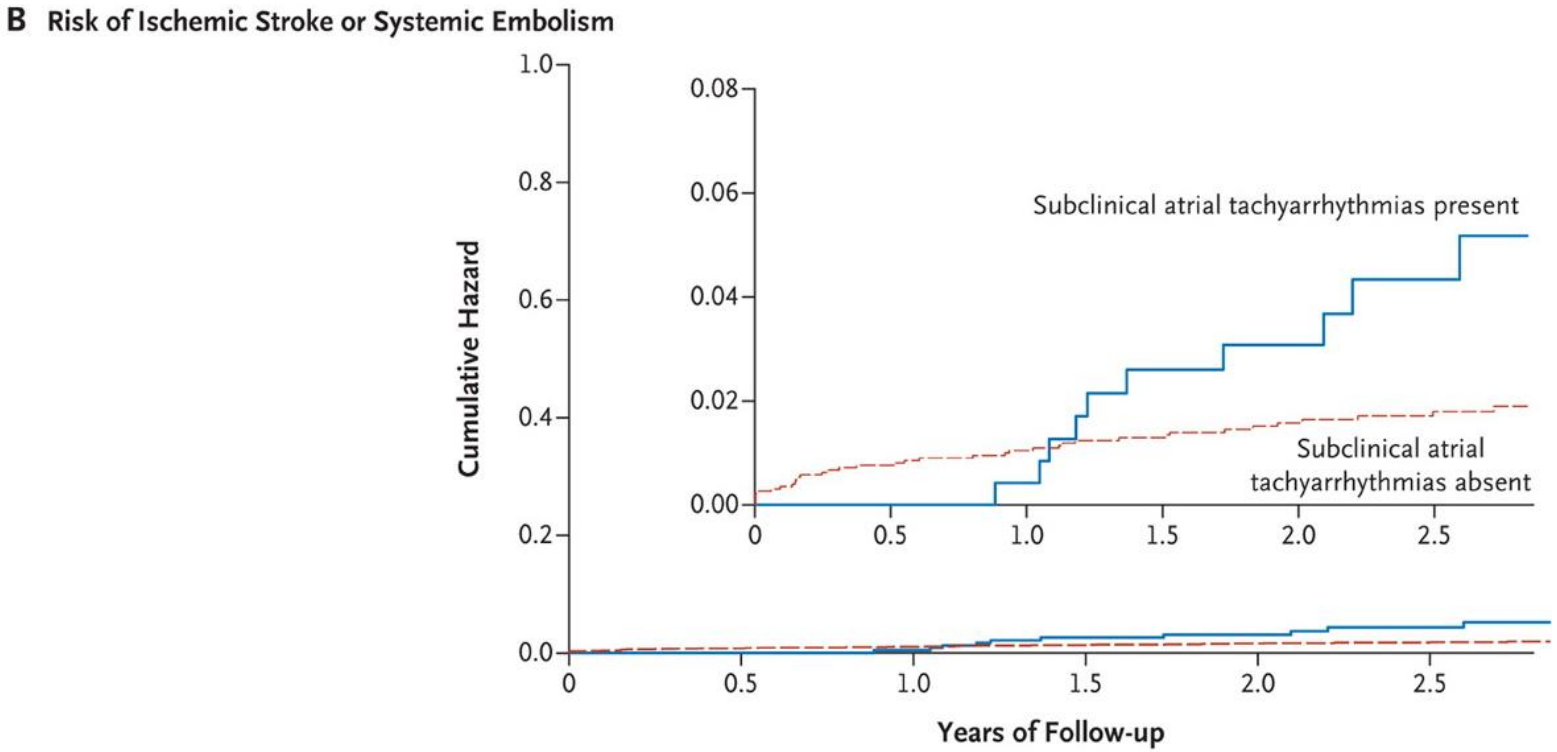
Subclinical Atrial Fibrillation and the Risk of Stroke

Jeff S. Healey, M.D., Stuart J. Connolly, M.D., Michael R. Gold, M.D., Carsten W. Israel, M.D., Isabelle C. Van Gelder, M.D., Alessandro Capucci, M.D., C.P. Lau, M.D., Eric Fain, M.D., Sean Yang, M.Sc., Christophe Bailleul, M.D., Carlos A. Morillo, M.D., Mark Carlson, M.D., Ellison Themeles, M.Sc., Elizabeth S. Kaufman, M.D., and Stefan H. Hohnloser, M.D., for the ASSERT Investigators*

N Engl J Med. 2012:366;2

ASSERT Trial

- SCAF were associated with an increased risk of ischemic stroke or systemic embolism (hazard ratio, 2.49).



Conclusions

- A great percentage of patients with atrial fibrillation remain undiagnosed
- Patient operated, patient-friendly newer diagnostic tools offer hope for increased detection and improved management/follow-up of atrial fibrillation

Thank you!

References

Issa Z, Miller J, Zipes D. Clinical Arrhythmology and electrophsiology, 1st edition, 2009.

Huang S, Wood M. Catheter ablation of cardiac arrhythmias, 2nd edition, 2011.