

Traquer la FA ASYMTOMATIQUE

Outils externes et implantables

Dr Walid AMARA

Groupement Hospitalier de Territoire

Grand Paris Nord-Est

Aulnay-sous-Bois - Le Raincy-Montfermeil - Montreuil



Disclosures

- ◆ Consulting and Speaker's fees from BMS, Boehringer Ingelheim, Biotronik, Medtronic, Boston Scientific, Microport.

Authors/Task Force Members:

Isabelle C. Van Gelder (ESC Chairperson) (Netherlands), Dipak Kotecha (ESC Chairperson) (United Kingdom), Michiel Rienstra (Task Force Co-ordinator) (Netherlands), Karina V. Bunting (Task Force Co-ordinator) (United Kingdom), Ruben Casado-Arroyo (Belgium), Valeria Caso¹ (Italy), Harry J.G.M. Crijns (Netherlands), Tom J.R. De Potter (Belgium), Jeremy Dwight (United Kingdom), Luigina Guasti (Italy), Thorsten Hanke² (Germany), Tiny Jaarsma (Sweden), Maddalena Lettino (Italy), Maja-Lisa Løchen (Norway), R. Thomas Lumbers (United Kingdom), Bart Maesen² (Netherlands), Inge Mølgaard (Denmark), Giuseppe M.C. Rosano (United Kingdom), Prashanthan Sanders (Australia), Renate B. Schnabel (Germany), Piotr Suwalski² (Poland), Emma Svennberg (Sweden), Juan Tamargo (Spain), Otilia Tica (Romania), Vassil Traykov (Bulgaria), Stylianos Tzeis (Greece).

¹ Representing the European Stroke Organisation (ESO).

² Representing the European Association for Cardio-Thoracic Surgery (EACTS).

Clinical concept	Definition
Clinical AF	Symptomatic or asymptomatic AF that is clearly documented by an ECG (12-lead ECG or other ECG devices). The minimum duration to establish the diagnosis of clinical AF for ambulatory ECG is not clear and depends on the clinical context. Periods of 30 s or more may indicate clinical concern, and trigger further monitoring or risk stratification for thromboembolism.
Device-detected subclinical AF	Device-detected subclinical AF refers to asymptomatic episodes of AF detected on continuous monitoring devices. These devices include implanted cardiac electronic devices, for which most atrial high-rate episodes may be AF, as well as consumer-based wearable monitors. Confirmation is needed by a competent professional reviewing intracardiac electrograms or an ECG-recorded rhythm. Device-detected subclinical AF is a predictor of future clinical AF.
AF burden	The overall time spent in AF during a clearly specified and reported period of monitoring, expressed as a percentage of time.

Prendre la pouls de votre grand-mère



Patient initiated (or medical professional) oscillometric blood pressure cuff



Pulse palpitation, auscultation

Performance of pulse palpation compared to one-lead ECG in atrial fibrillation screening

Katrin Kemp Gudmundsdottir MD¹ | Tove Fredriksson MD, PhD¹ |
Emma Svennberg MD, PhD^{1,2} | Faris Al-Khalili MD, PhD¹ | Leif Friberg MD, PhD¹ |
Henrike Häbel PhD³ | Viveka Frykman MD, PhD¹ | Johan Engdahl MD, PhD¹

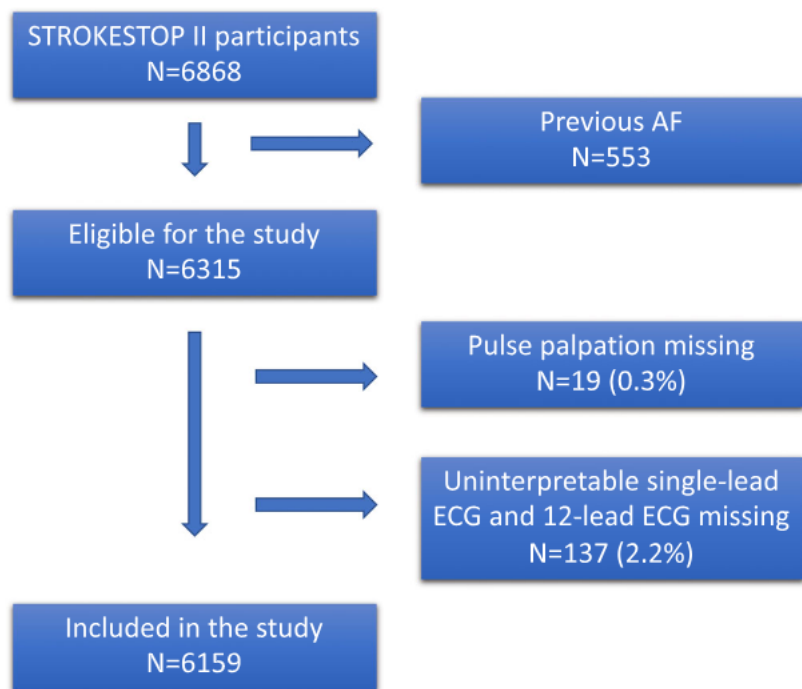
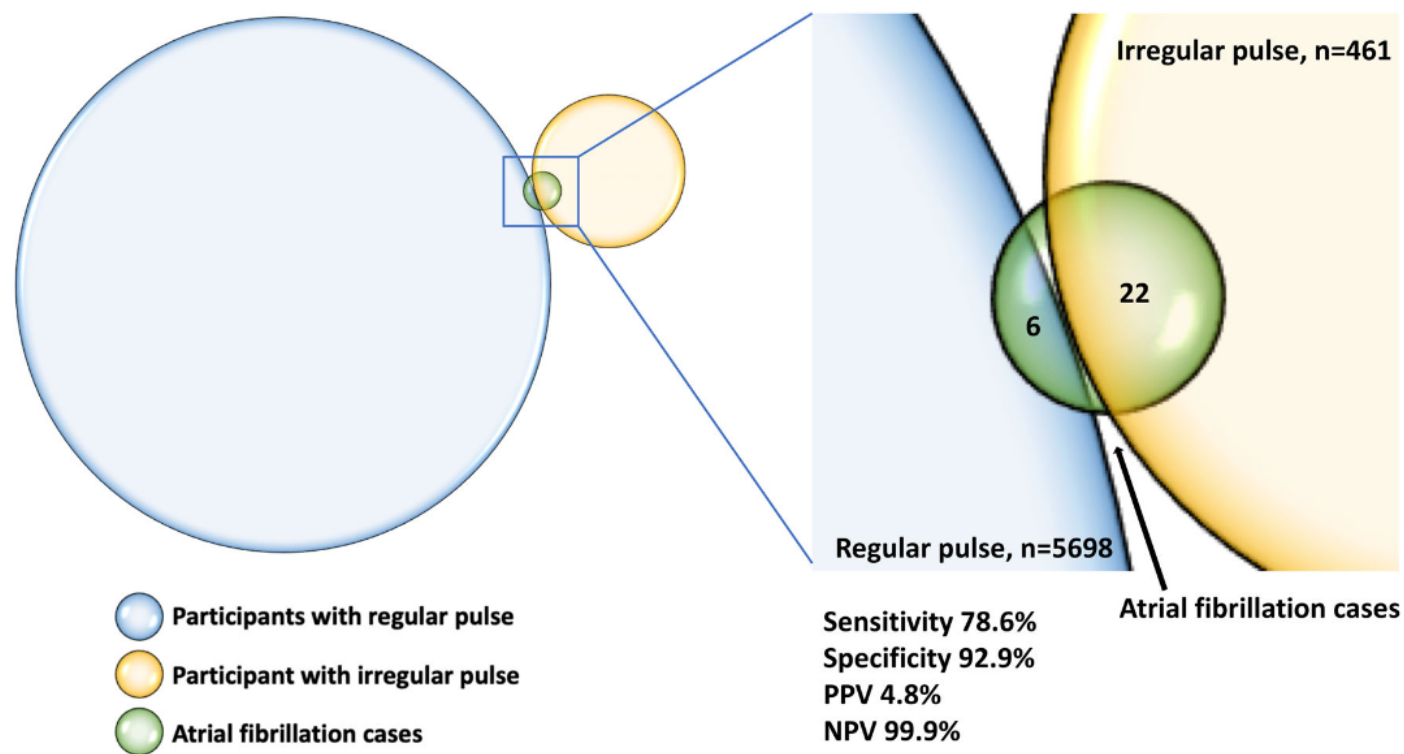


FIGURE 1 Study flow chart



Photoplethysmographie



Patient initiated
photoplethysmogram on
smartphone



Semi-continuous
photoplethysmogram on a
smartwatch or wearable

2018 – FDA APPROVAL FOR AF DETECTION WITH THE APPLE WATCH ECG



Results of a Large-scale, App-based Study to
Identify Atrial Fibrillation Using a Smartwatch:

The Apple Heart Study

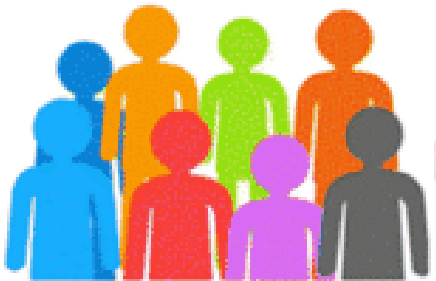


Mintu Turakhia MD MAS and Marco Perez MD
on behalf of the Apple Heart Study Investigators

NCT # 03335800



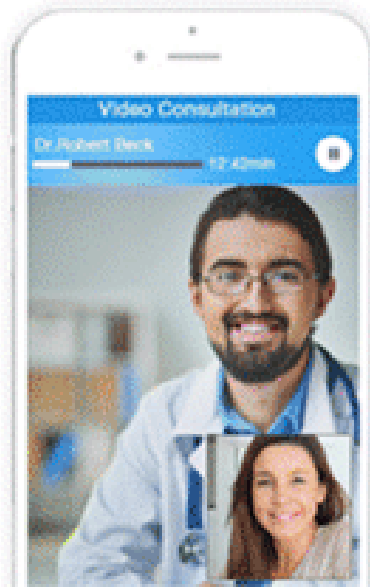
Recruitment
29/Nov/2017 to
31/Jul/2018



Notification



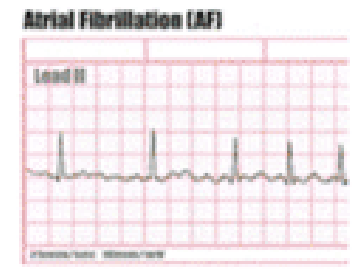
Virtual
consultation



ePatch



AF



419.297
participants
> 65 years →
24.262

2.161 (0,52%)
participants
≥ 65 years → 3,2%
< 40 years → 0,16%

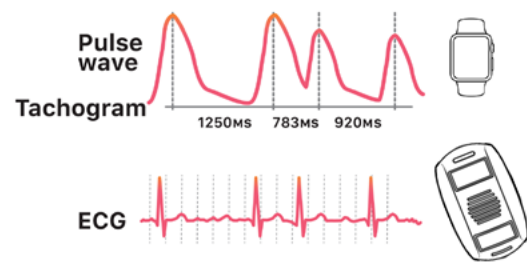
945 (44%)
participants

658 (70%)
participants
received
450/658 (68%)
returned

153/450 (34%)
participants
≥ 65 years →
35%

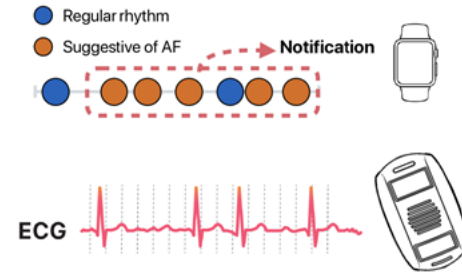
Positive Predictive Values

Irregular Tachograms



Afib on ECG Patch	Total Positive Tachograms	PPV* (97.5% CI)
1,489	2,089	0.71 (0.69–0.74)

Irregular Pulse Notifications



Afib on ECG Patch	Total Positive Notifications	PPV (95% CI)
72	86	0.84 (0.76–0.92)

* Decision rule for lower bound of CI ≥ 0.7 and upper bound ≥ 0.75 not met



Detection of Atrial Fibrillation in a Large Population using Wearable Devices: the Fitbit Heart Study

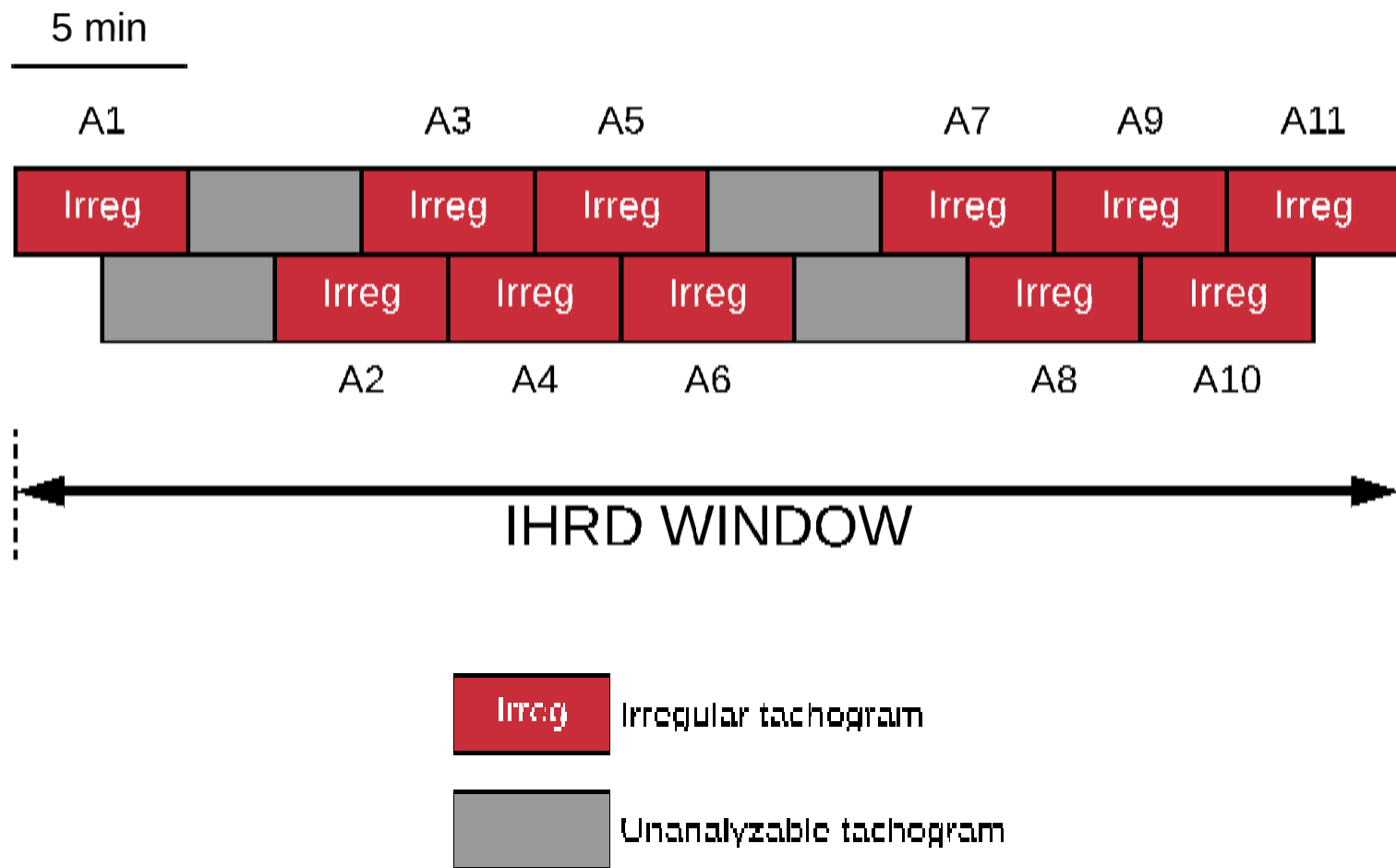
Steven A. Lubitz, MD, MPH; Anthony Z. Faranesh, PhD; Caitlin Selvaggi, MS; Steven J. Atlas, MD, MPH; David D. McManus, MD, ScM; Daniel E. Singer, MD; Sherry Pagoto, PhD; Alexandros Pantelopoulos, PhD; Andrea S. Foulkes, PhD



MASSACHUSETTS
GENERAL HOSPITAL

CORRIGAN MINEHAN
HEART CENTER

Novel irregular heart rhythm detection (IHRD) algorithm



Continuous sampling

5-min tachograms, 50% overlap

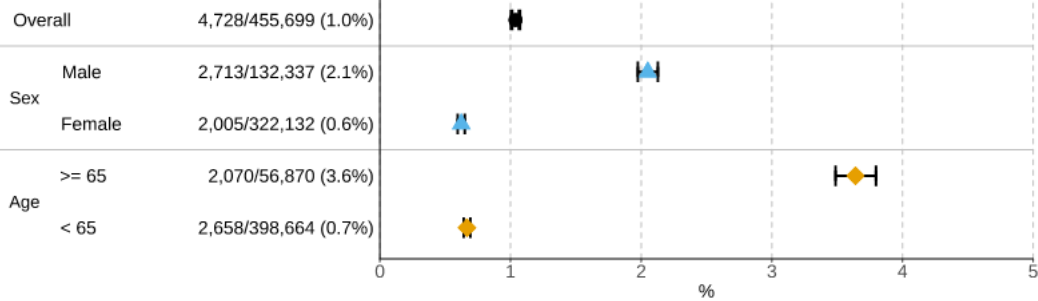
11/11 irregular tachograms

≥ 30-minutes of irregular rhythm

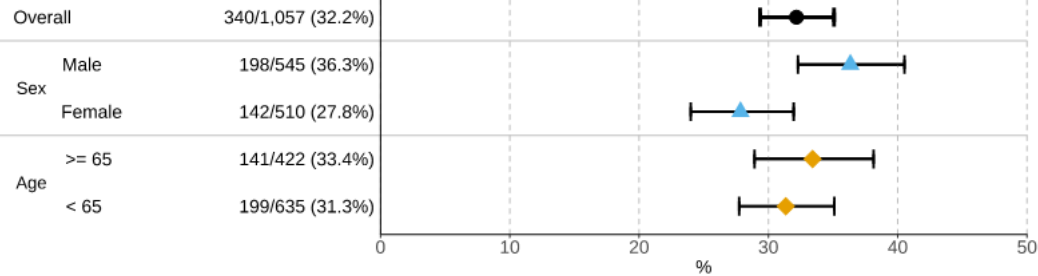
Only analyzes if inactive

Resets with negative tachogram

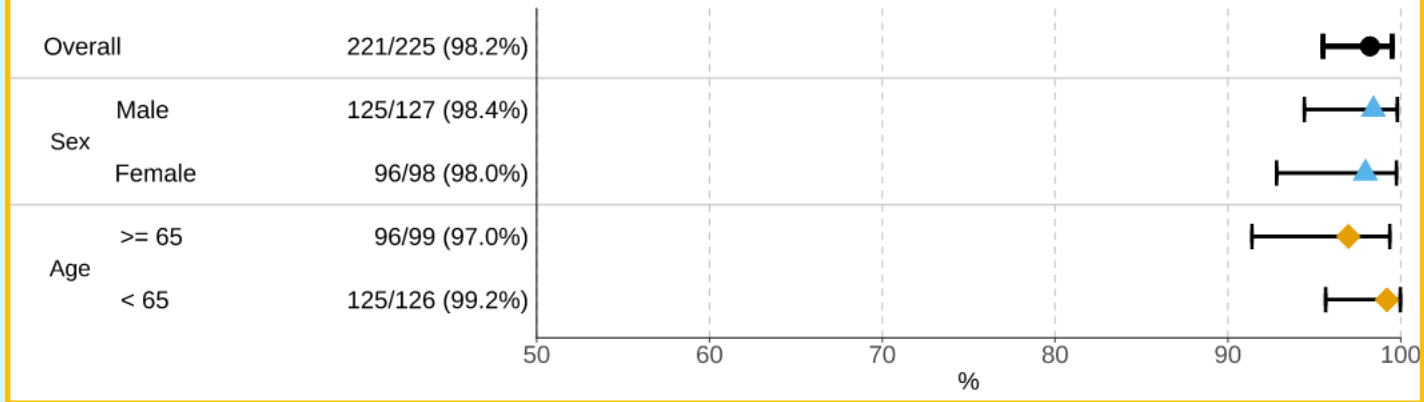
Fraction with an IHRD Notification



Fraction with AF Confirmed on Subsequent ECG Patch



Primary Endpoint: IHRD PPV for Concurrent AF on ECG Patch



Long term monitoring tools

- **MCOT: Mobile Cardiac Outpatient Telemetry**
Cardionet

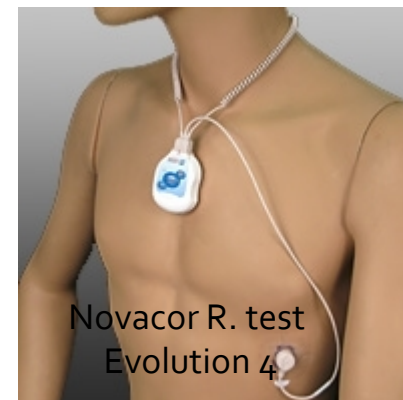
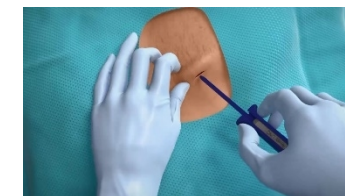


- **External loop recorder**
Sorin Spiderflash Afib



- **Insertable cardiac monitor**

Medtronic Reveal XT
Ou LINQ



Novacor R. test
Evolution 4

Le dispositif qui va remplacer le holter
ECG à court terme ?

536 vues · il y a 5 mois

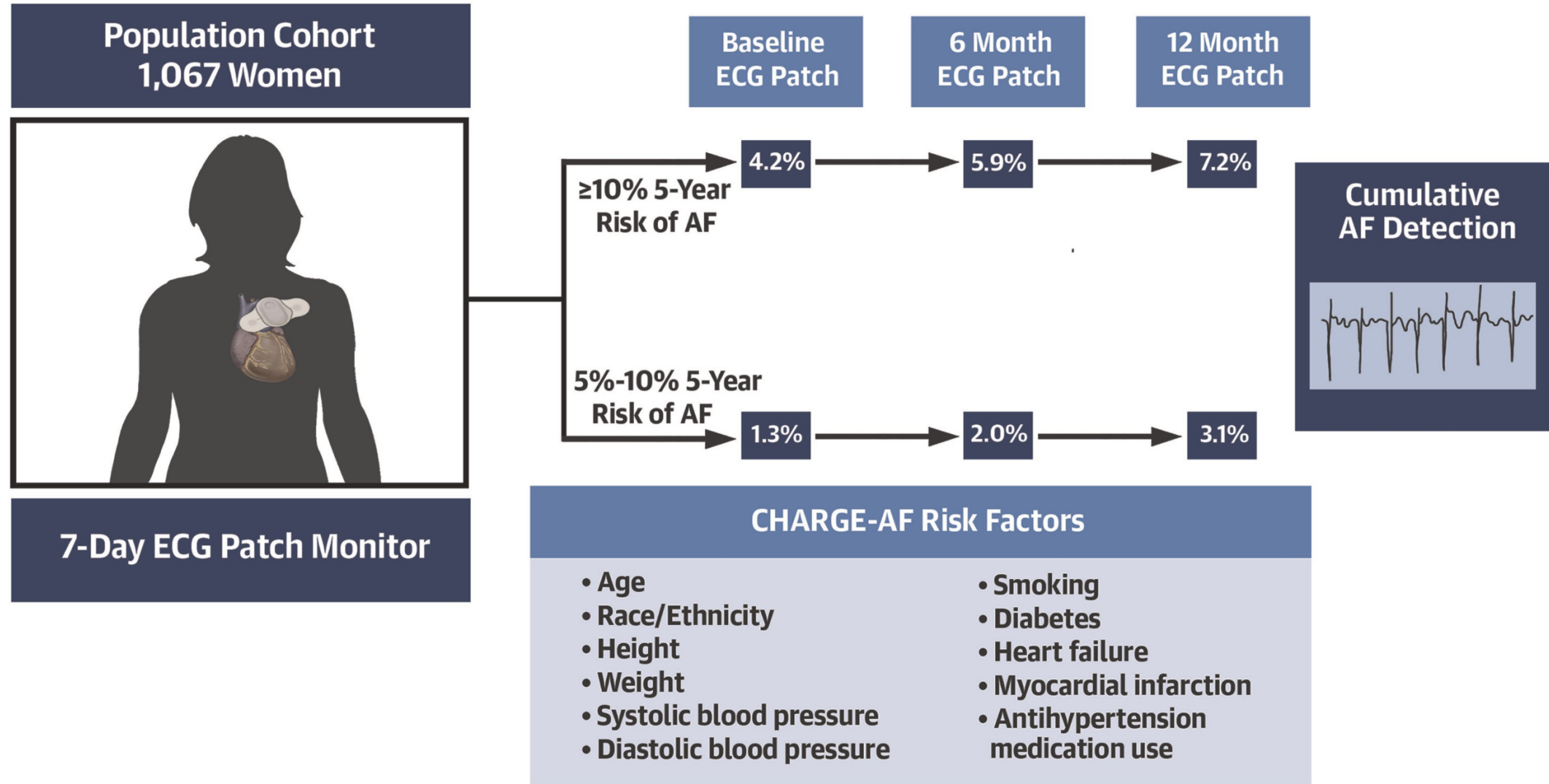
Dr Walid Amara, Cardiologue et Rythmologue

Et voici sur le stand iRhythm au congrès Heart Rhythm. Voici les deux versions du Zio patch. Qualité impressionnante des tracés !



1:03

CENTRAL ILLUSTRATION: Atrial Fibrillation Detection by CHARGE-AF Score in the Women's Health Initiative



February 24, 2021

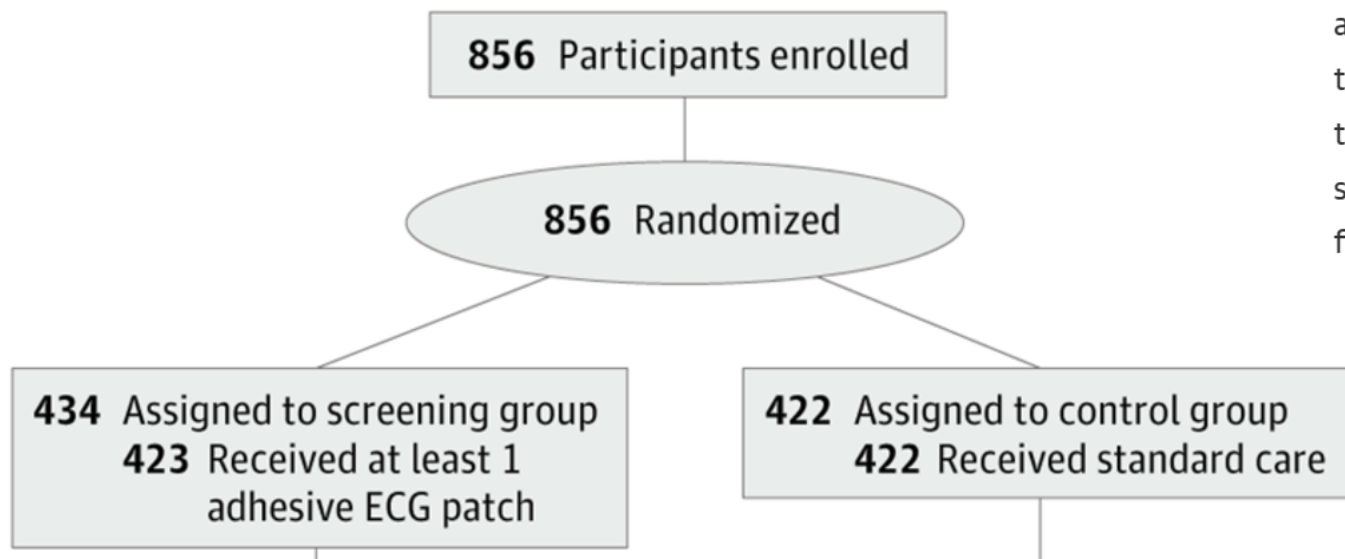
Screening for Atrial Fibrillation in the Older Population

A Randomized Clinical Trial

David J. Gladstone, MD, PhD^{1,2}; Rolf Wachter, MD^{3,4,5}; Katharina Schmalstieg-Bahr, MD^{6,7}; [et al](#)

[» Author Affiliations](#) | [Article Information](#)

JAMA Cardiol. 2021;6(5):558-567. doi:10.1001/jamacardio.2021.0038



Findings In a randomized clinical trial of 856 participants aged 75 years or older with hypertension from outpatient primary care practices, new atrial fibrillation was detected in 5.3% of the screening group vs 0.5% of the control group. Median atrial fibrillation duration on continuous electrocardiographic monitoring was 6.3 hours, and anticoagulation was prescribed to 75.0% of the participants with screen-detected atrial fibrillation.

EVENT RECORDER

amazon.fr Prime

Toutes nos catégories ▾ alivecort kardia

black friday WEEK

Votre adresse de livraison: Neuilly-s... 92200

Parcourir les catégories ▾

Chez vous Black Friday Week Noël Chèques-cadeaux Vendre Aide

Bonjour. Identifiez-vous Vos Comptes et listes ▾

Amazon.fr Offres suivies Ventes Flash ▾ Outlet Meilleures ventes ▾ Offres reconditionnées ▾ Nos idées cadeaux ▾ Services Amazon ▾ Amazon Assistant Coupons


1 résultat pour "alivecort kardia" Trier par

Afficher les résultats pour

Sports et Loisirs Cardiofréquencesmètres Voir les 3 boutiques

Affiner par

Option d'expédition (Qu'est-ce?)
 prime
 Livraison gratuite



ALIVECOR Kardia Mobile
de AliveCor

138,90 € prime

Recevez votre article le **mercredi 22 novembre**
Livraison gratuite possible (voir fiche produit).

Plus de choix d'achat
138,90 € neuf (2 offres)

★★★★☆ 18



 Payez par prélèvement bancaire Cliquez ici

Les clients ayant consulté **Le KardiaMobile 6L- Enregistreur ECG personnel et marqué CE pour iOS et...** ont également consulté



ALIVECOR Kardia Mobile
★★★★☆ 68
EUR 160,69 ✓prime
4 utilisé et neuf from EUR 160,00

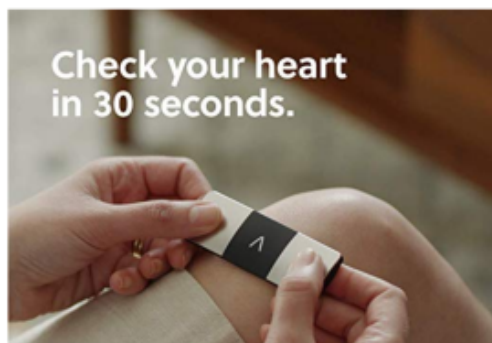


RLSOCO Étui pour ALIVECOR
Kardia Mobile
★★★★☆ 11
EUR 10,99
1 utilisé et neuf from EUR 10,99



EMAY Moniteur ECG Portable,
Mobile Electrocardiographe, Mesure
la fréquence Cardiaque, ECG et
Les symptômes
★★★★☆ 20
EUR 79,00 ✓prime
1 utilisé et neuf from EUR 79,00

Commerce, Industrie et Science > Fournitures médicales professionnelles > Diagnostic et dépistage > Electrocardiographes



Le KardiaMobile 6L- Enregistreur ECG personnel et marqué CE pour iOS et Android | ECG 6 dérivationes sans fil | Détecte la Fibrillation Atriale (FA) en 30 secondes

de AliveCor
★★★★☆ 728 évaluations

Prix : 199,00 €
Tous les prix incluent la TVA.

- L'appareil ECG personnel le plus puissant: Un ECG 6 dérivationes permettant d'augmenter largement la précision du suivi cardiaque. Un ECG à emporter : Prenez un ECG de qualité médicale n'importe où, n'importe quand.
- Reconnu par les médecins : marqué CE pour détecter spécifiquement la fibrillation auriculaire, la Bradycardie, la Tachycardie ou le rythme cardiaque normal en 30 secondes.

199,00 €

Livré : 29 févr. - 3 mars
Livraison accélérée : 28 févr. - 2 mars
Détails

Entrez votre adresse

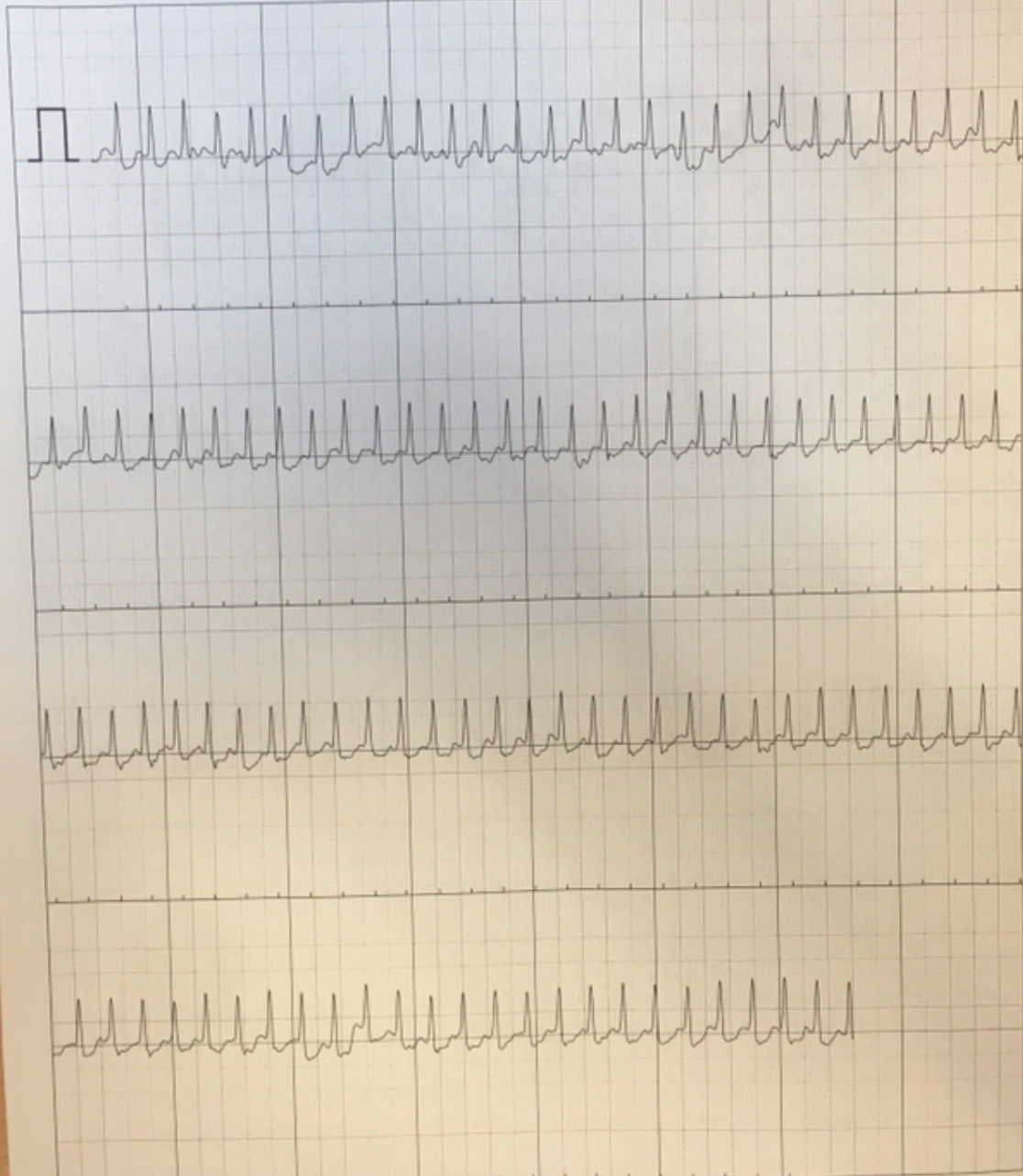
Il ne reste plus que
11 exemplaire(s) en stock.

Quantité : 1

199,00 € + EUR 5,00 Livraison







PULsE-AI

randomised controlled trial to assess

the effectiveness of a **risk-prediction algorithm** in conjunction with **diagnostic testing** for identifying undiagnosed atrial fibrillation (AF) in primary care

PARTICIPANTS

INTERVENTION

RESULTS



23,745 participants randomised

Intervention group

Control group

Intervention group participants identified high risk of AF

Control group participants identified high risk of AF



Offered intervention (diagnostic testing)

Accepted

Did not accept

Diagnostic testing
(28.1% of those at high risk)
12-lead ECG + 2-weeks of home-based ECG monitoring
in addition to routine care

Routine care

Routine care

% participants receiving AF and related arrhythmia diagnoses

The AF-risk prediction algorithm could be a valuable tool to select primary care groups at high risk of undiagnosed AF who may benefit from diagnostic testing

5.63%

OR 1.15; p=0.486

4.93%

PRIMARY ANALYSIS

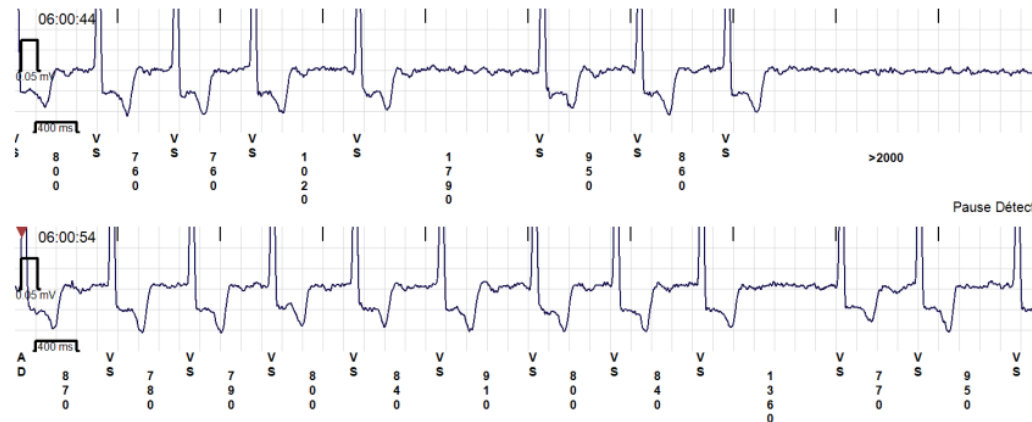
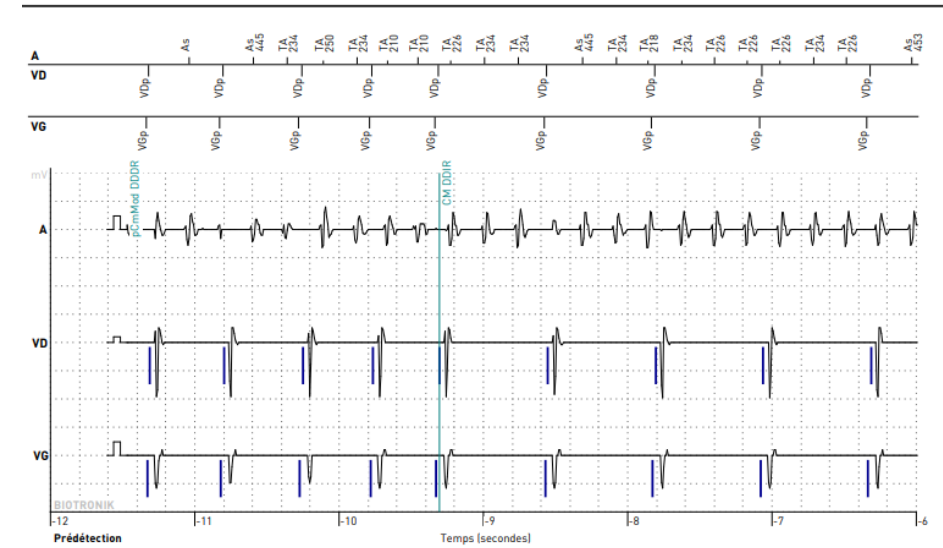
9.41%

OR 2.24; p=0.003

4.93%

SUBGROUP ANALYSIS

Fibrillation atriale infraclinique



Asymptomatique
+ diagnostique
sur prothèse

Que sait t'on des études sur la FA infraclinique?

- ◆ 30% des personnes âgées en font au moins 5 min, sur un suivi de 1-3 ans
- ◆ FAic \geq 5–6 min multiplie par 2 le risque de survenue d'AVC et d'embolie systémique
(5 X pour la FAc)
- ◆ Le risque d'AVC augmente avec la durée de la FAic
- ◆ 30% des FAic deviendront FAc dans les 2 ans
- ◆ Pas de lien temporel entre les épisodes de FAic et l'AVC lorsqu'ils survient

ECG-diagnosed Atrial Fibrillation

Incidence of ECG diagnosed atrial fibrillation in NOAH AFNET 6

AHRE duration ≥ 24 hours	AHRE duration < 24 hours
17.0%/patient-year	8.2%/patient-year

Incidence of ECG diagnosed atrial fibrillation in ARTESIA

AHRE
6.3%/patient-year

**Quand mettre
en place un
moniteur ECG
implantable ?**



3:22

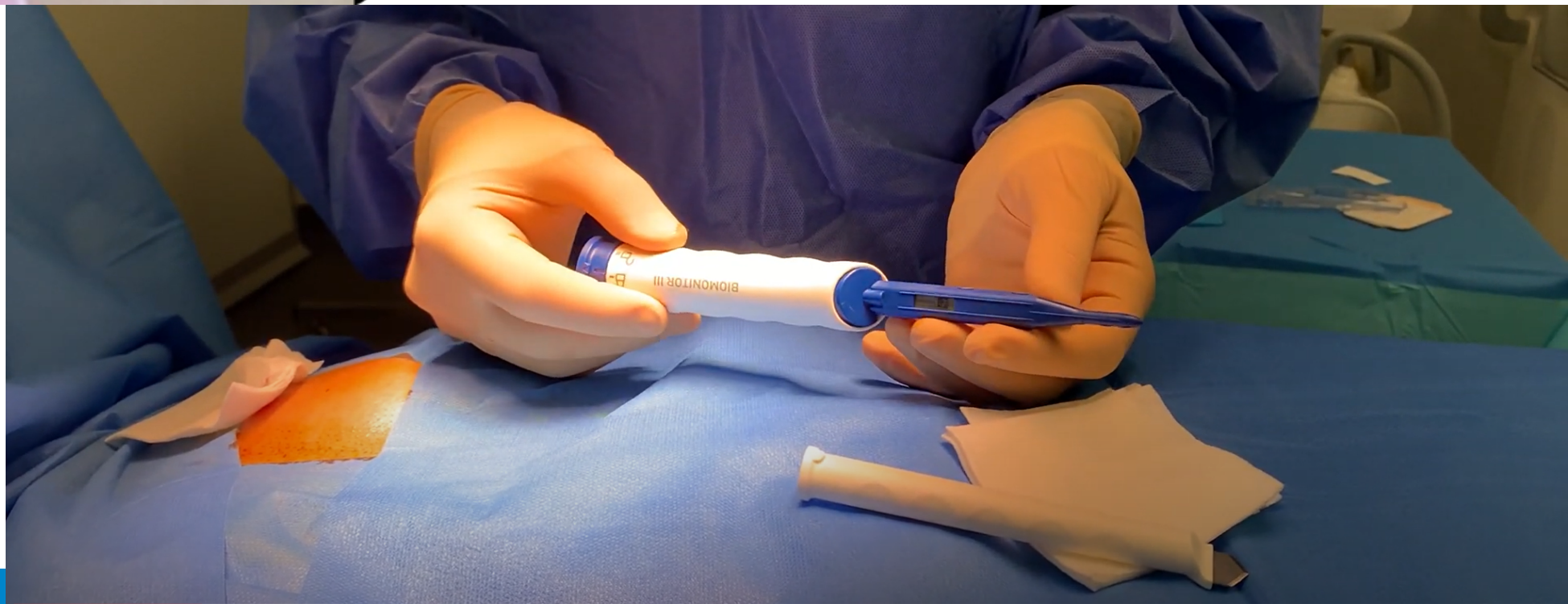
Quand mettre un moniteur ECG implantable ?

2,5 k vues • il y a 1 an



Dr Walid Amara

Quand implanter un "holter implantable" ? Ces petits boîtiers ECG de la taille d'une gélule sont aussi appelés holter injectables.



ORIGINAL ARTICLE

Cryptogenic Stroke and Underlying Atrial Fibrillation

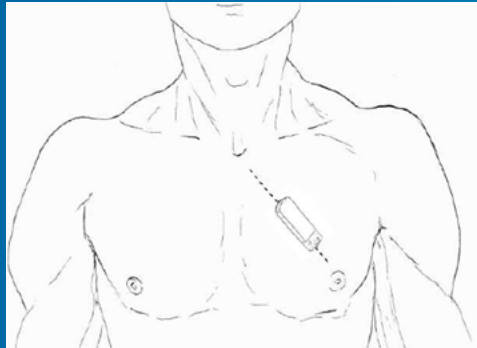
Tommaso Sanna, M.D., Hans-Christoph Diener, M.D., Ph.D.,
Rod S. Passman, M.D., M.S.C.E., Vincenzo Di Lazzaro, M.D.,
Richard A. Bernstein, M.D., Ph.D., Carlos A. Morillo, M.D.,
Marilyn Mollman Rymer, M.D., Vincent Thijs, M.D., Ph.D.,
Tyson Rogers, M.S., Frank Beckers, Ph.D., Kate Lindborg, Ph.D.,
and Johannes Brachmann, M.D., for the CRYSTAL AF Investigators*

N ENGL J MED 370;26 NEJM.ORG JUNE 26, 2014



Comparison of Monitoring Strategies

Continuous Monitoring Arm: Implantation of REVEAL® XT



Minimally invasive outpatient procedure

Local anesthetic and no leads or fluoroscopy

15-30 minute procedure

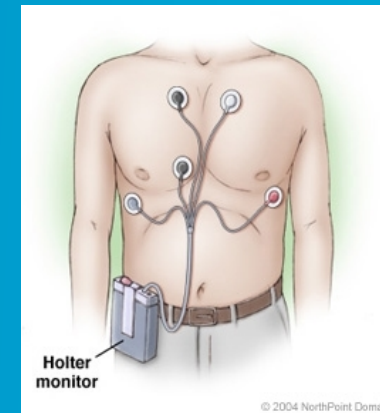
Device can be followed remotely

MRI conditional

3 year device longevity

Automatic AF detection algorithm

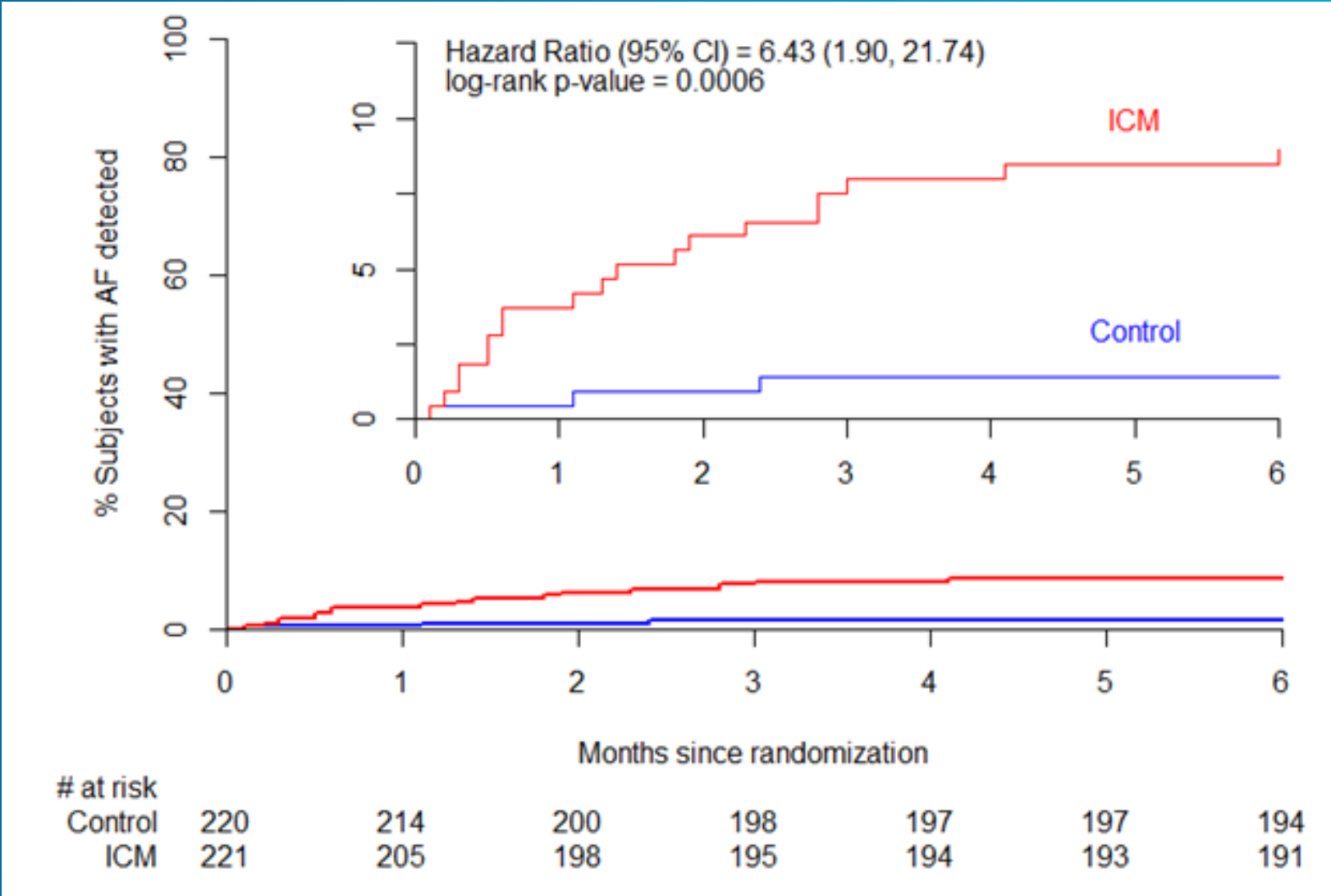
Standard Monitoring Arm



Cardiac monitoring performed according to local standards, after mandated testing completed

Symptoms consistent with AF were evaluated by study physicians

Primary Endpoint: DETECTION OF AF AT 6 MONTHS



Rate of detection in ICM arm was 8.9% vs 1.4% in control arm

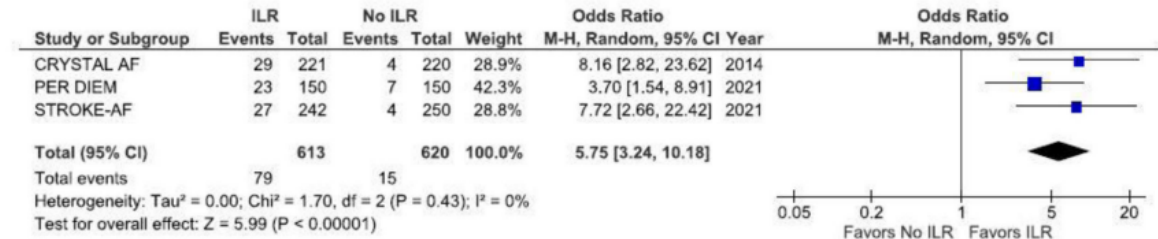
Meta-Analysis > Am J Cardiol. 2022 Jan 1;162:100-104. doi: 10.1016/j.amjcard.2021.09.013.

Epub 2021 Oct 28.

Meta-Analysis of Randomized Clinical Trials Comparing the Impact of Implantable Loop Recorder Versus Usual Care After Ischemic Stroke for Detection of Atrial Fibrillation and Stroke Risk

Darae Ko¹, Qiying Dai², David B Flynn³, Nicholas A Bosch⁴, Robert H Helm⁵, Kevin M Monahan⁵, Charlotte Andersson⁵, Christopher D Anderson⁶, Allan J Walkey⁷

A)



B)

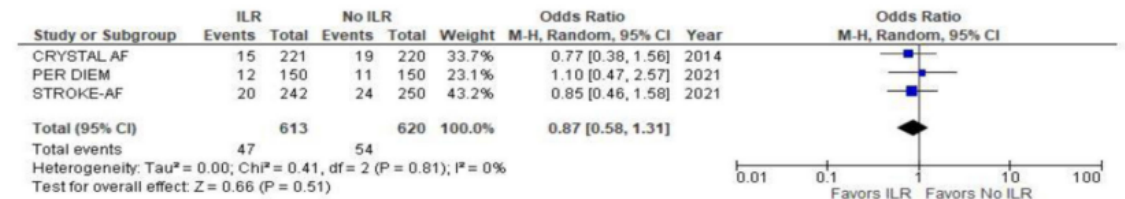


Figure 1.

Pooled analyses comparing ILR to control in the odds of (A) AF detection (B) stroke (ischemic or hemorrhagic) or TIA. The forest plot shows that ILR is more likely to detect AF compared to control but there is no statistical difference in the risk of stroke or TIA between ILR and control.

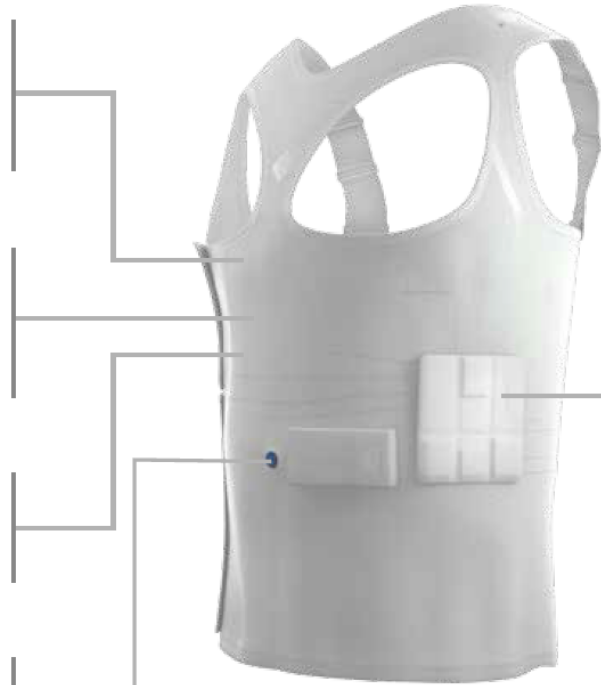
Cardioskin®

Smart textile designed for **patient comfort** throughout their daily activities, including sleep*

Designed to be simple to wear with **no skin preparation** required

Fully-embedded **prepositioned electrodes and wires**

Built-in event button to **notify symptoms**



Up to 14 days locally stored data in the recorder, while offline

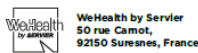
Up to 30 days online ECG data recording while connected to Wi-Fi

Designed for **easy data recovery** to visualise your patients' data and make a diagnosis of cardiac disorders



* For complete instructions, please refer to the user manual.⁷

Cardioskin is a CE Mark device.



Please refer to the user manual:
<https://manuals.cardioskin.com>



BioSerenity SAS
47 boulevard de l'hôpital,
75013 Paris, France

Designed for **easy data recovery**
to visualise your patients'
data and make a diagnosis
of cardiac disorders



Cardioskin®

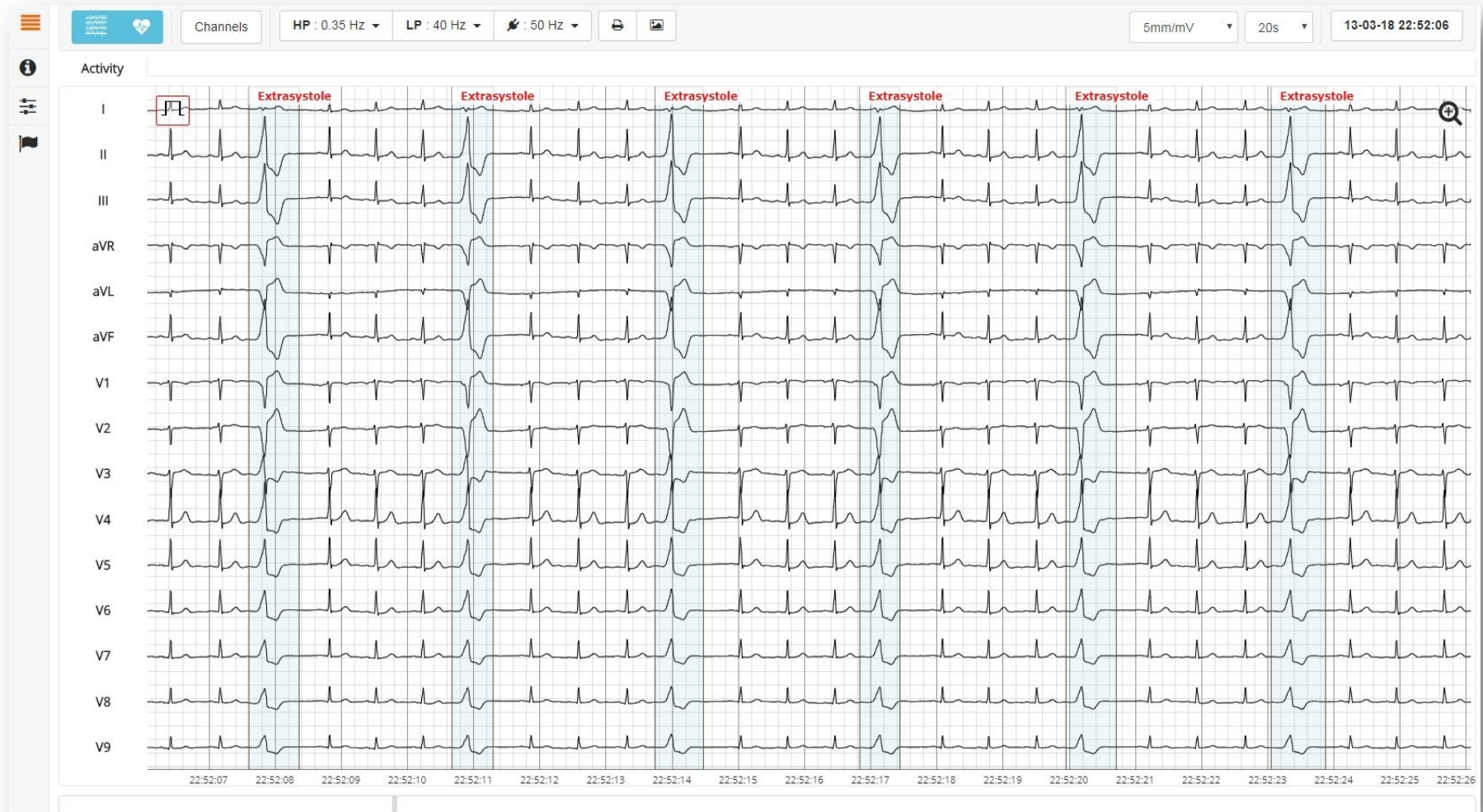
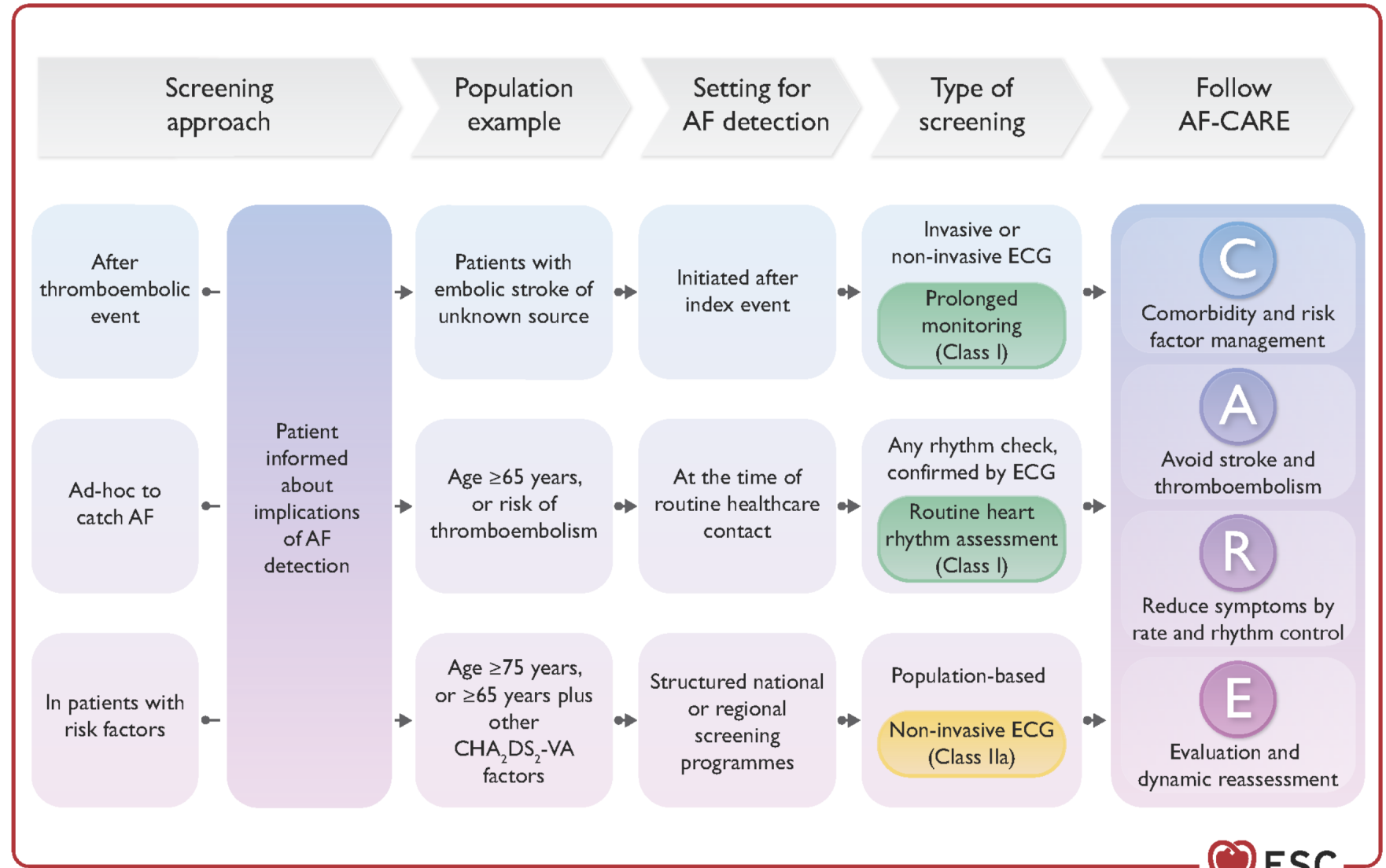


Table 5 Sensitivity and specificity of various AF screening tools considering the 12-lead ECG as the gold standard

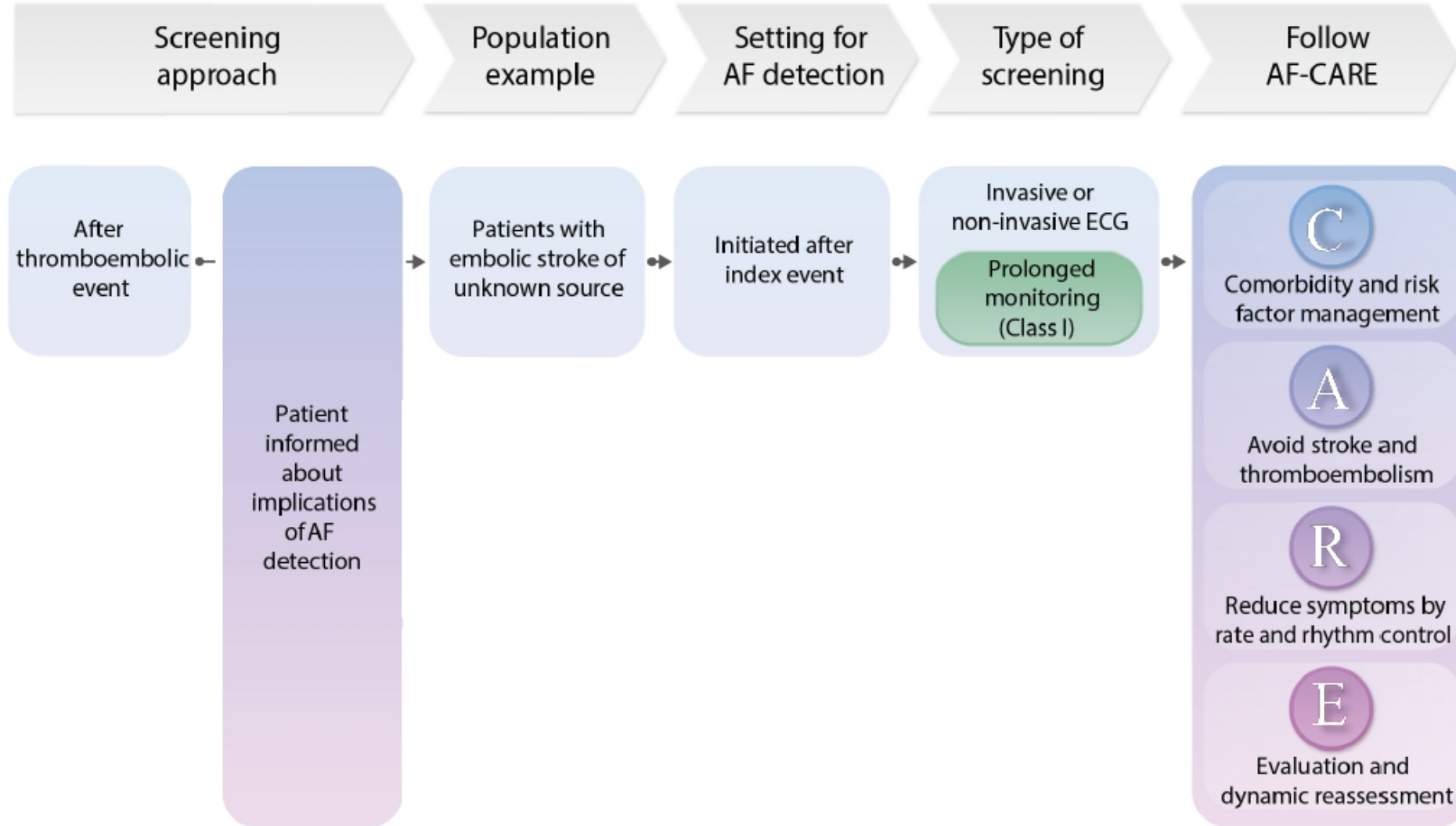
	Sensitivity	Specificity
Pulse taking	87–97%	70–81%
Automated BP monitors	93–100%	86–92%
Single lead ECG	94–98%	76–95%
Smartphone apps	91.5–98.5%	91.4–100%
Watches	97–99%	83–94%

Figure 16

Approaches to screening for atrial fibrillation



Screening for AF



peux tu generer une image qui represente les outils disponibles de depistage de la fibrillation atriale asymptomatique?



Voici une image qui illustre les différents outils de dépistage de la fibrillation atriale asymptomatique. Elle met en avant des dispositifs modernes comme des montres connectées, des appareils ECG portatifs, des applications mobiles et des ECG traditionnels dans un cadre médical. Si vous souhaitez d'autres ajustements, n'hésitez pas à le préciser !

Message ChatGPT