

Enregistrement de Montre connectée



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Collège
National des
Cardiologues des
Hôpitaux



- Dr AMARA: Consulting and Speaker's fees from Bayer, BMS, Pfizer, Boehringer Ingelheim, Biotronik, Medtronic, Boston Scientific, Microport, Novartis, AstraZeneca



Question

- Est-ce un beau cadeau d'anniversaire à votre belle maman ?



Situation 1

- La montre envoie une notification



Outils diagnostiques Les smartwatches

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

N ENGL J MED 381;20 NEJM.ORG NOVEMBER 14, 2019



Résultats:

Notification de rythme irrégulier :

- Suivi moyen : 117 jours
- 50% après 38 jours d'inclusion
- 90% après 133 jours d'inclusion

Fibrillation atriale:

- 153/450 patients ayant eu le patch ECG: 34%
- 35% chez les ≥ 65 ans, 18% pour < 40 ans
- FA persistante : 20%
- FA $< 50\%$ du temps monitoré ++

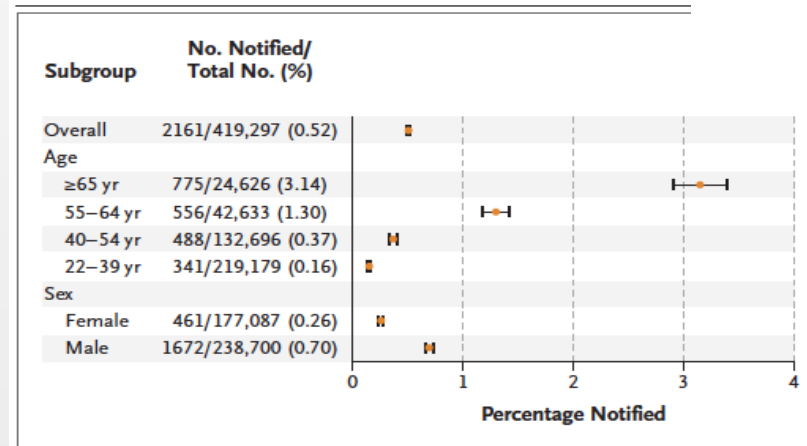


Figure 2. Irregular Pulse Notifications, According to Age and Sex.
Horizontal bars indicate 97.5% confidence intervals.

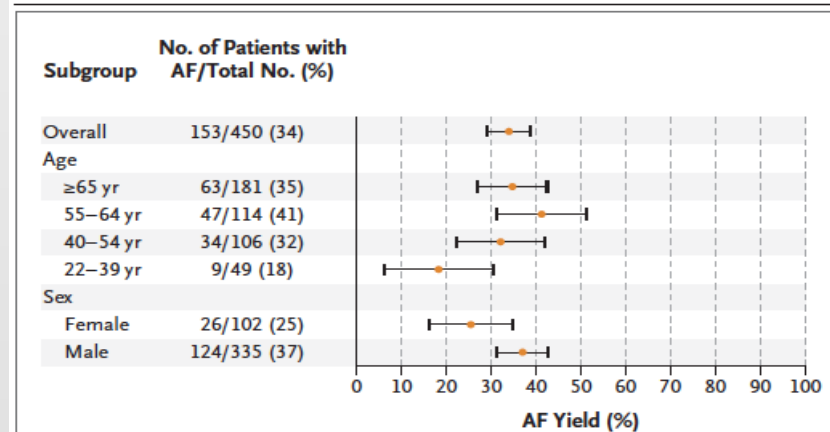
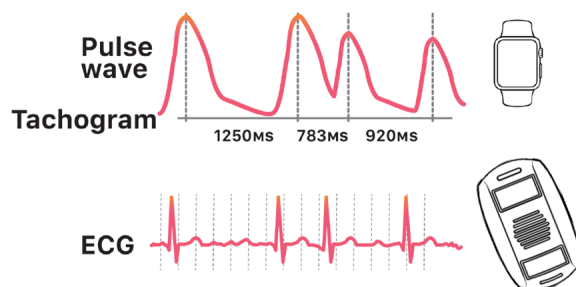


Figure 3. Yield of Atrial Fibrillation on ECG Patch Monitoring.
Horizontal bars indicate 97.5% confidence intervals.



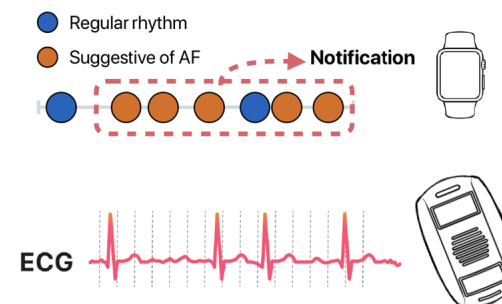
Positive Predictive Values

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. Farnesh, 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



HARVARD
MEDICAL SCHOOL

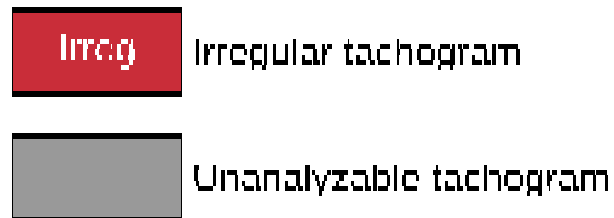
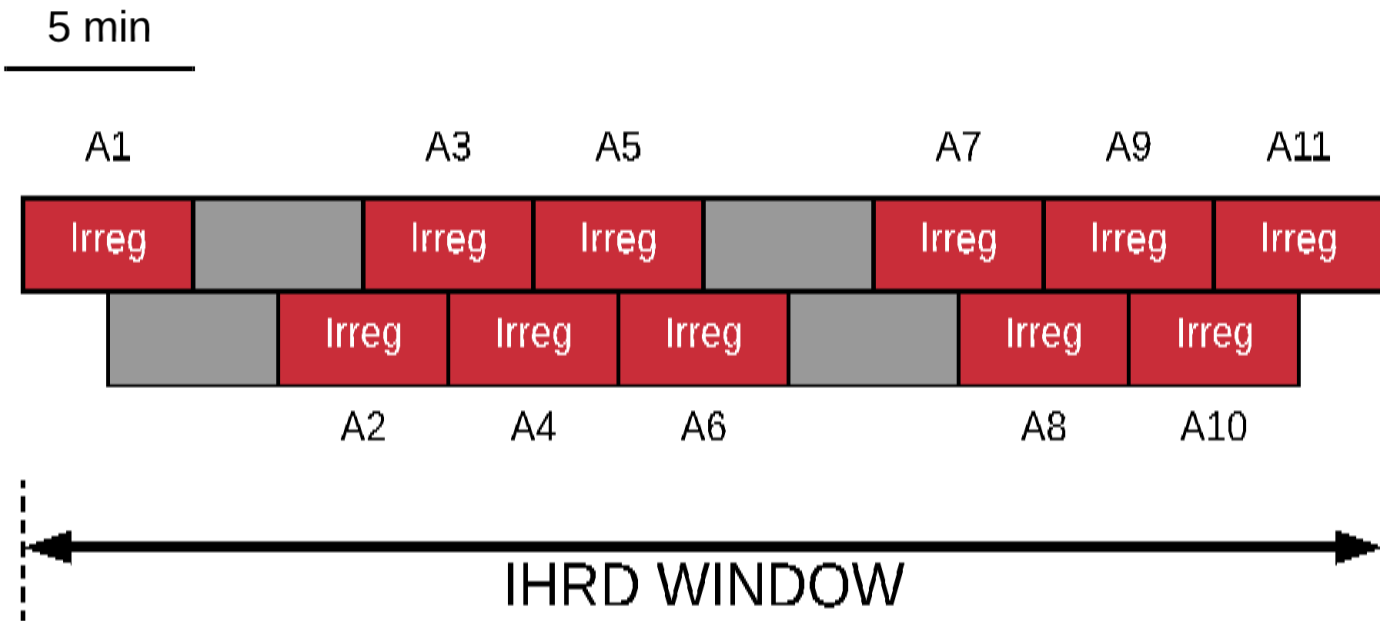


MASSACHUSETTS
GENERAL HOSPITAL

**CORRIGAN MINEHAN
HEART CENTER**



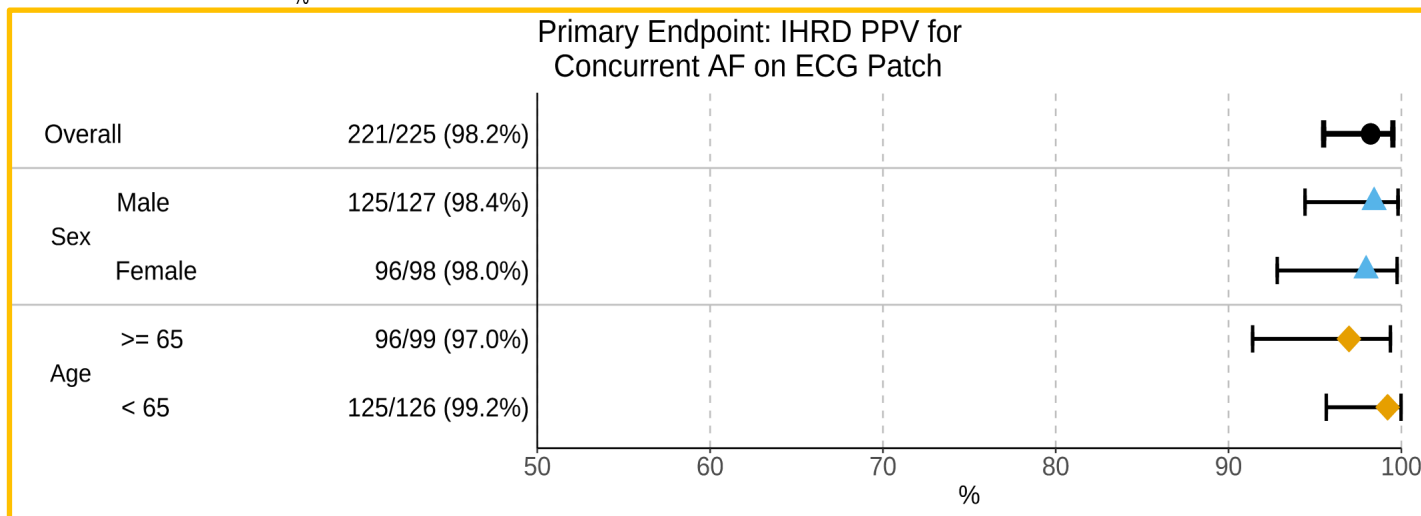
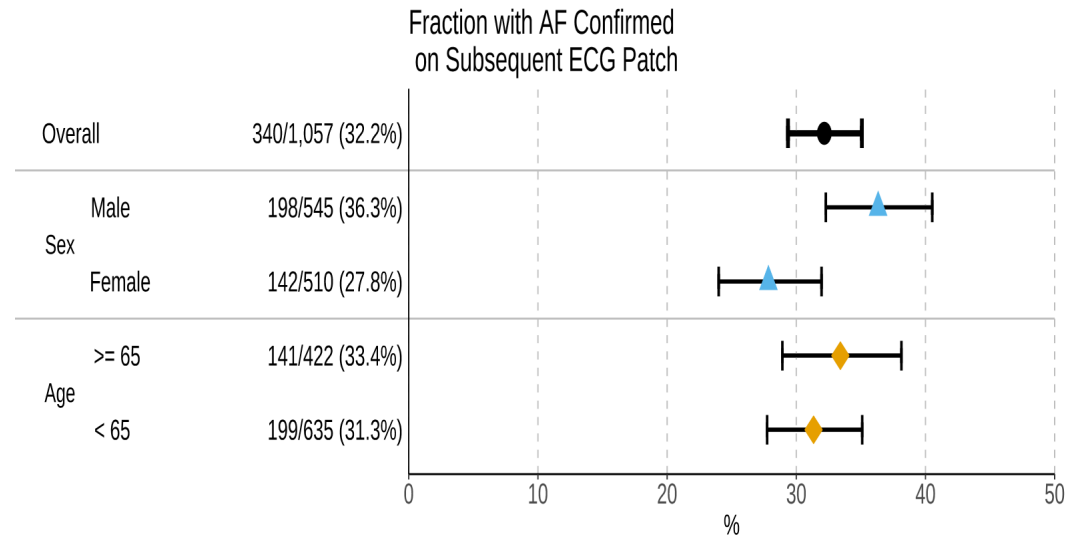
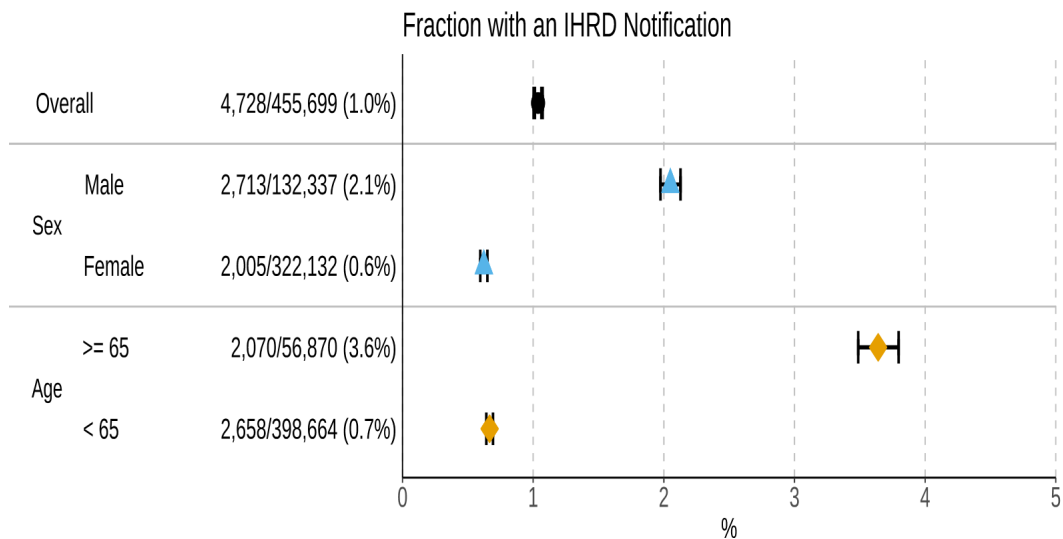
Novel irregular heart rhythm detection (IHRD) algorithm.



- Echantillon continu
- 5 min
- 11/11 tachogramme irrégulier
- ≥ 30 -minde rythme irrégulier
- Analyse uniquement si actif
- Reset si tachogram négatif



Study results





Situation 2

- ECG de la montre



• SMARTWATCH ECG FOR AF DETECTION



Atrial Fibrillation — ❤️ 93 BPM Average

This ECG shows signs of AF.

If this is an unexpected result, you should talk to your doctor.



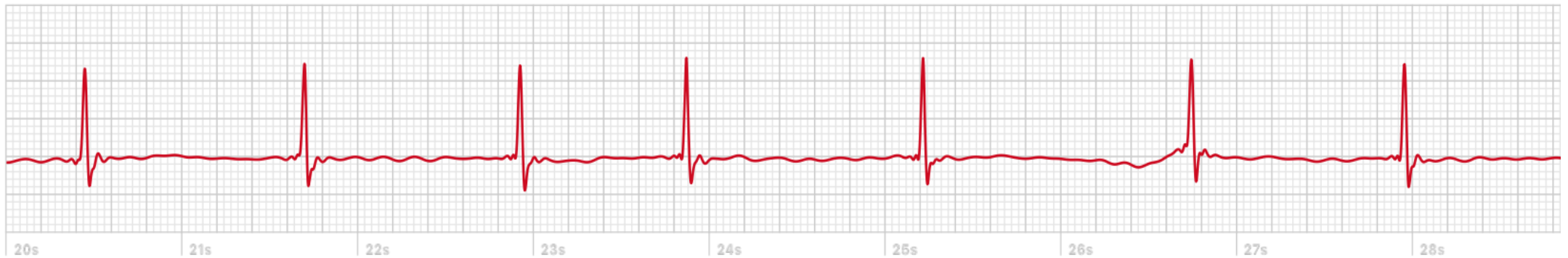


- False Negatives (missed AF):

Heart Rate Under 50 — ❤️ 46 BPM

Average

This ECG was not checked for AFib because your heart rate was under 50 BPM.





- FALSE NEGATIVES (MISSED AF)

Heart Rate Over 120 — ❤️ 125 BPM
Average

This ECG was not checked for AFib
because your heart rate was over 120 BPM.





- False Positives (not AF)

Atrial Fibrillation — ❤️ 112BPM Average

This ECG shows signs of AF.



Atrial Fibrillation — ❤️ 93 BPM Average

This ECG shows signs of AF.



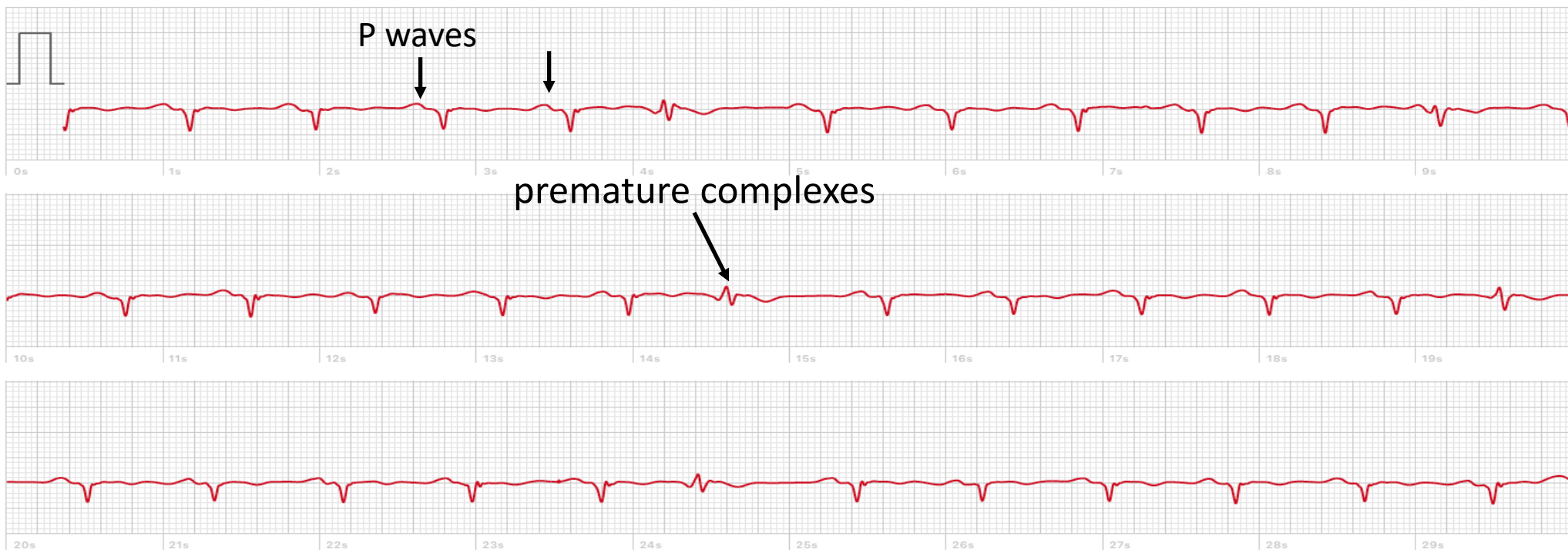


• False Positives (not AF)

Atrial Fibrillation — ❤️ 74 BPM Average

This ECG shows signs of AF.

If this is an unexpected result, you should talk to your doctor.





• Beyond Apple

Atrial Fibrillation – ❤️ 93 BPM Average

This ECG shows signs of AF.

If this is an unexpected result, you should talk to your doctor.



Samsung Health Monitor - ECG

Atrial fibrillation

Irregular heart rhythm detected. Talk to your doctor about this result.

Average heart rate: 88 bpm

Recorded on Mar 16, 2021, 2:20 PM



WITHINGS

Done on Tuesday, March 16 at 10:09 | Duration of 30 seconds | Left wrist

♥ Mean: 95 BPM

● Signs of Atrial Fibrillation





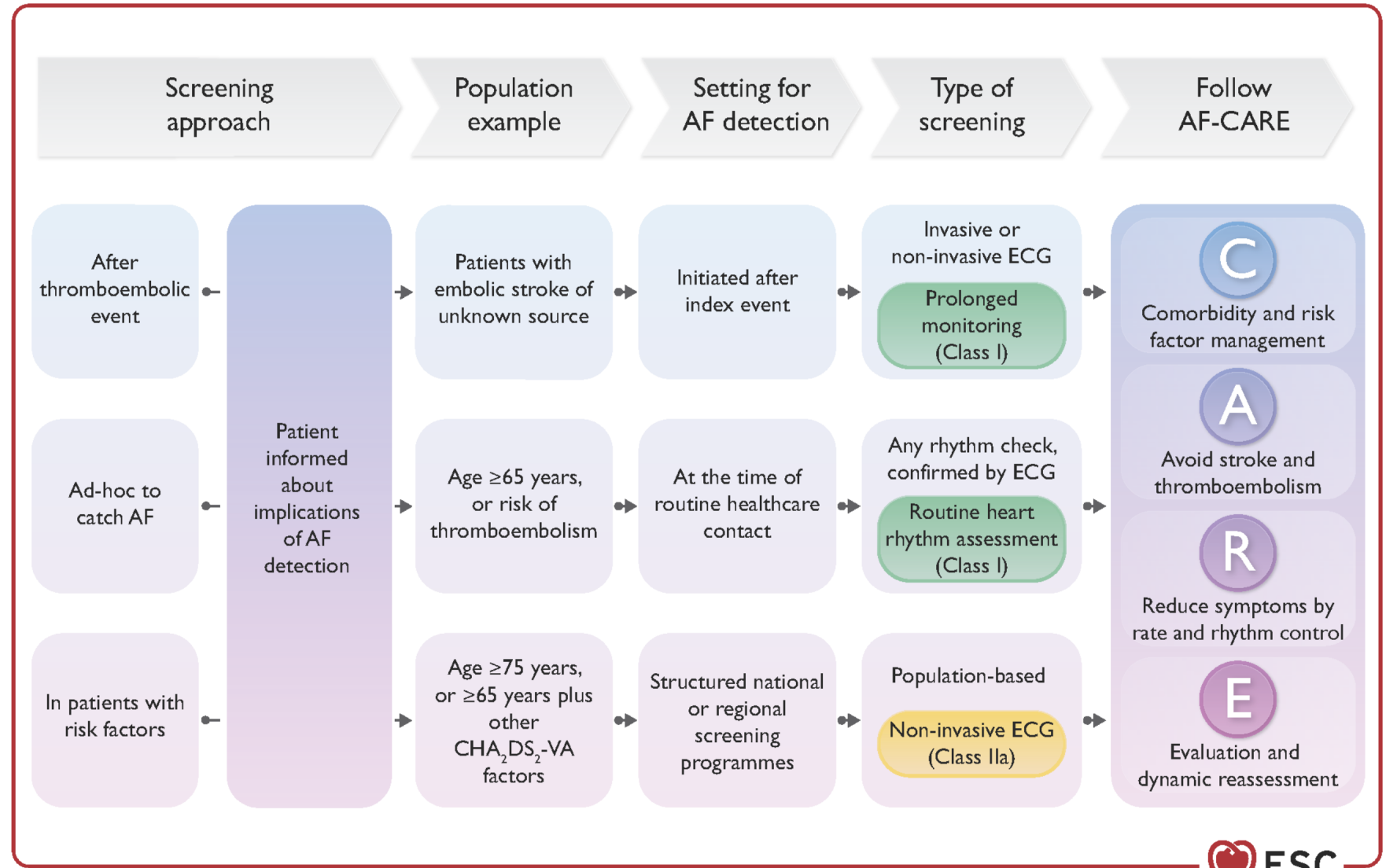
Recommendations for screening for atrial fibrillation

Recommendations	Class ^a	Level ^b	Ref ^c
Opportunistic screening for AF is recommended by pulse taking or ECG rhythm strip in patients >65 years of age.	I	B	130, 134, 155
In patients with TIA or ischaemic stroke, screening for AF is recommended by short-term ECG recording followed by continuous ECG monitoring for at least 72 hours.	I	B	27, 127
It is recommended to interrogate pacemakers and ICDs on a regular basis for atrial high rate episodes (AHRE). Patients with AHRE should undergo further ECG monitoring to document AF before initiating AF therapy.	I	B	141, 156
In stroke patients, additional ECG monitoring by long-term non-invasive ECG monitors or implanted loop recorders should be considered to document silent atrial fibrillation.	IIa	B	18, 128
Systematic ECG screening may be considered to detect AF in patients aged >75 years, or those at high stroke risk.	IIb	B	130, 135, 157

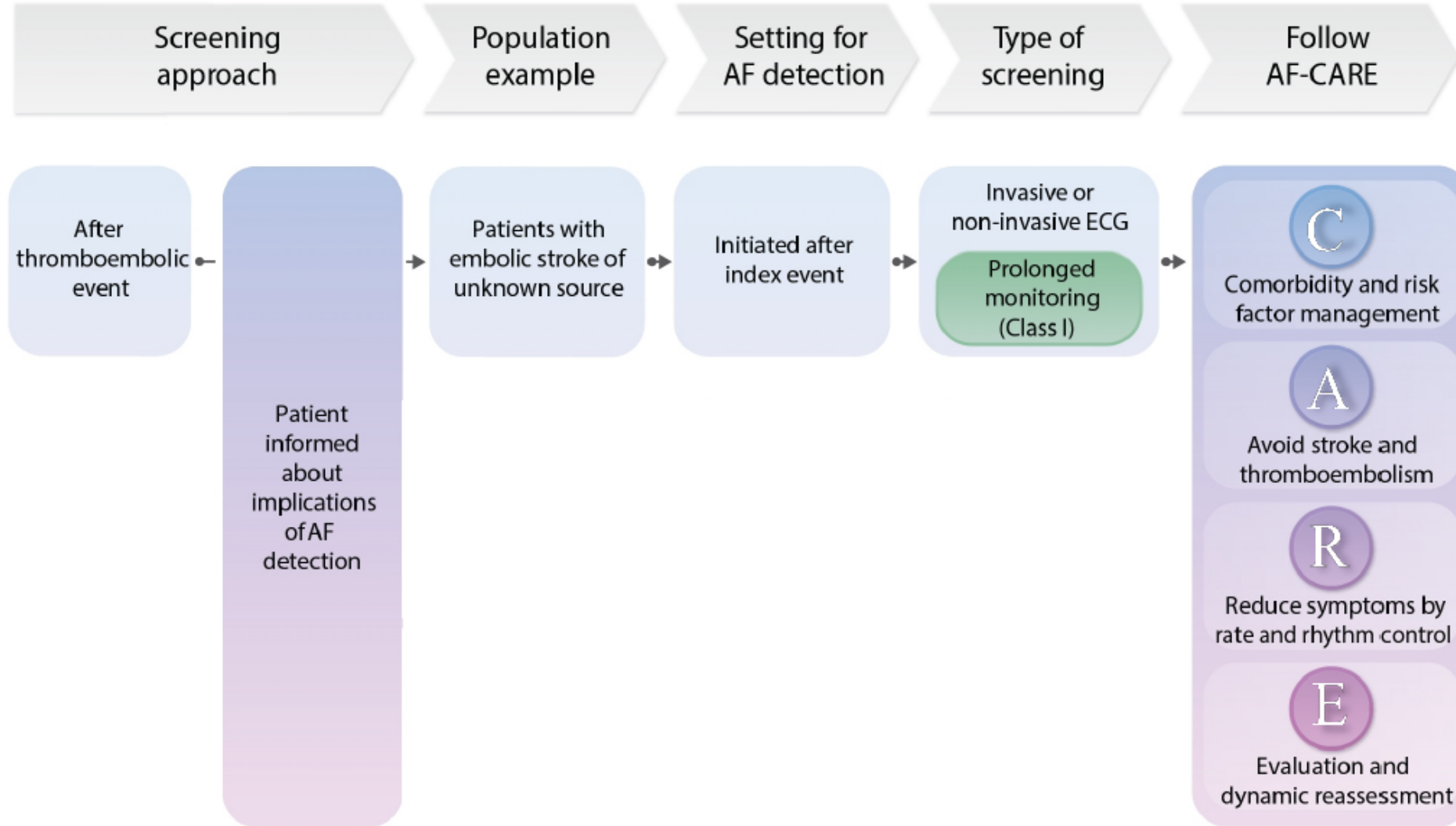
Recommendations	Class ^a	Level ^b	Ref ^c
In stroke patients, additional ECG monitoring by long-term non-invasive ECG monitors or implanted loop recorders should be considered to document silent atrial fibrillation.	IIa	B	18, 128

Figure 16

Approaches to screening for atrial fibrillation



Screening for AF



Airplane mode, Cellular, Wi-Fi, Bluetooth

À l'arrêt

Media playback controls: Previous, Play/Pause, Next

Screen rotation lock, Split View

Concentration

Dynamic Island: Ambient Light, Focus Mode

Dynamic Island: Speaker, Volume

Flashlight

Camera

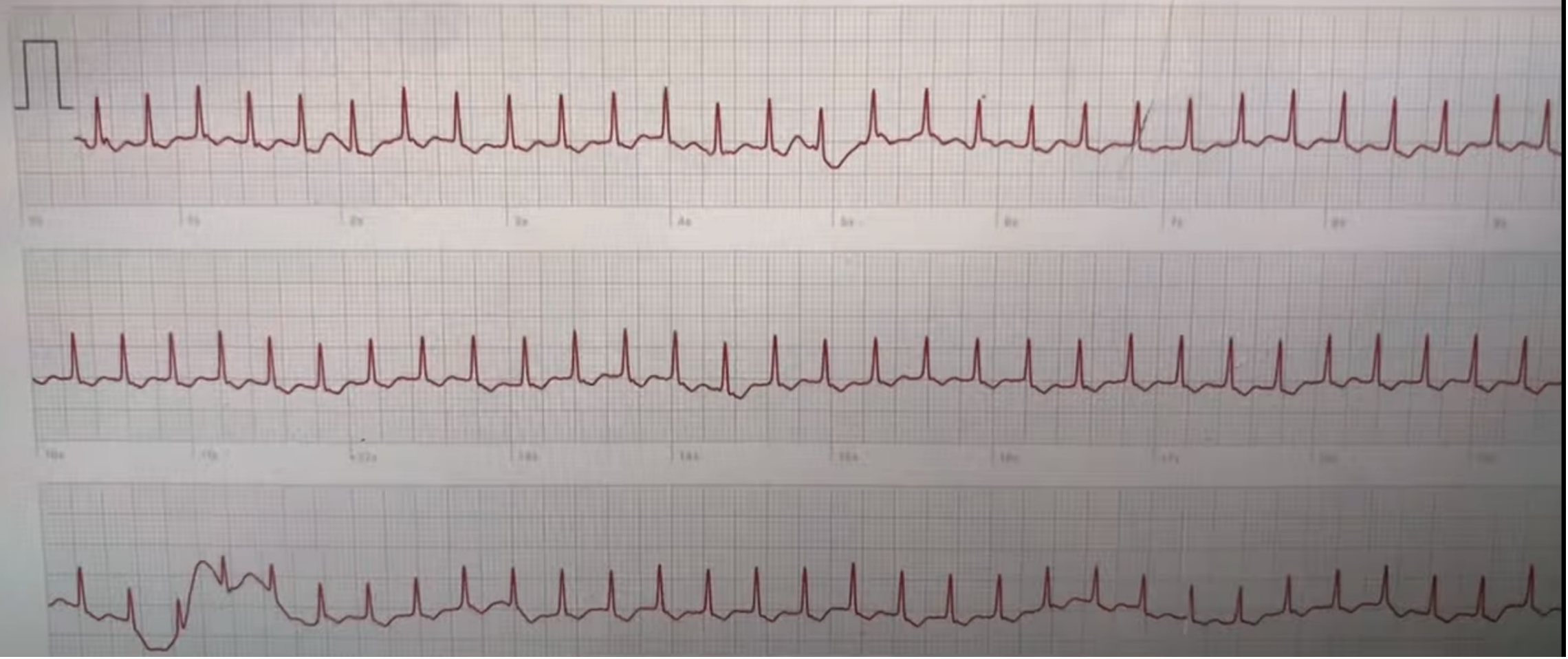
Timer

Battery

Calculator

App Store

Si vous obtenez ce résultat à plusieurs reprises
ou que vous ne vous sentez pas bien, consultez
votre médecin.





AMALFI:

Active Monitoring for Atrial Fibrillation

A randomized controlled trial of remote screening for asymptomatic atrial fibrillation

Prof Louise Bowman, University of Oxford, UK
on behalf of the AMALFI trial investigators

29 August 2025

AMALFI trial design

Moderate-high risk people (≥ 65 years)

CHA₂DS₂VASc score >3 (men) or >4 (women)

No AF in primary care record

Recruit ~5000 people

R

```
graph TD; R((R)) --> A[Sent 14-day ECG patch monitor]; R --> B[Standard care]; A --> C[AF diagnosis]; B --> C;
```

Sent 14-day ECG patch monitor

Standard care

AF diagnosis

AMALFI trial questions

1. **How much more AF** can we detect (at 2.5 years)?
 - primary endpoint
2. **How much actionable time** do we gain to act on AF (in a 5 year period)?
 - long-term results
3. Is AF screening like this **cost-effective** in the NHS?
 - health economic analyses

A simple remote trial

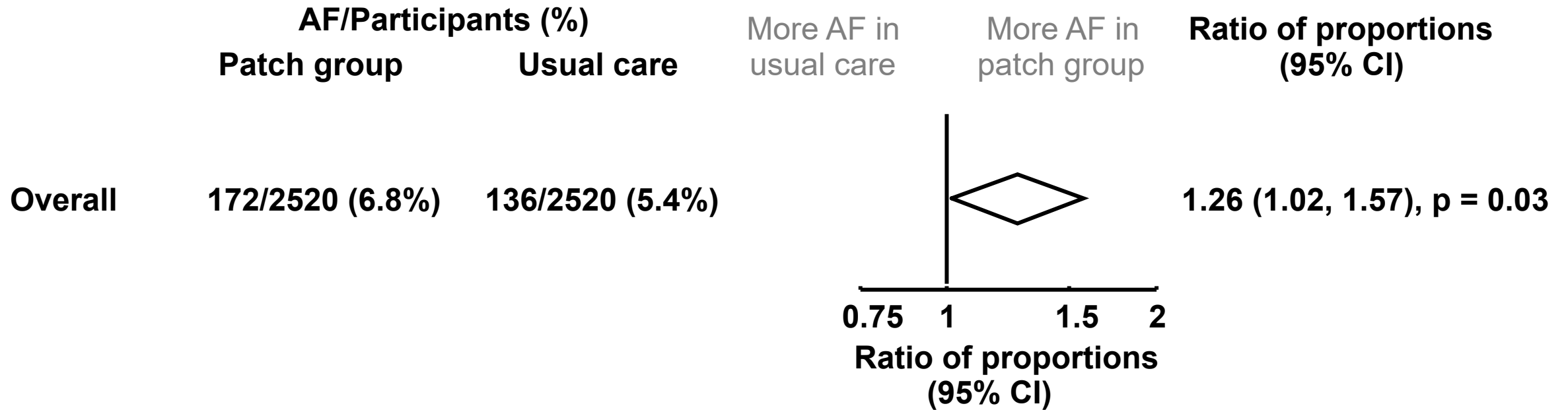


**No contact with healthcare
professionals required**

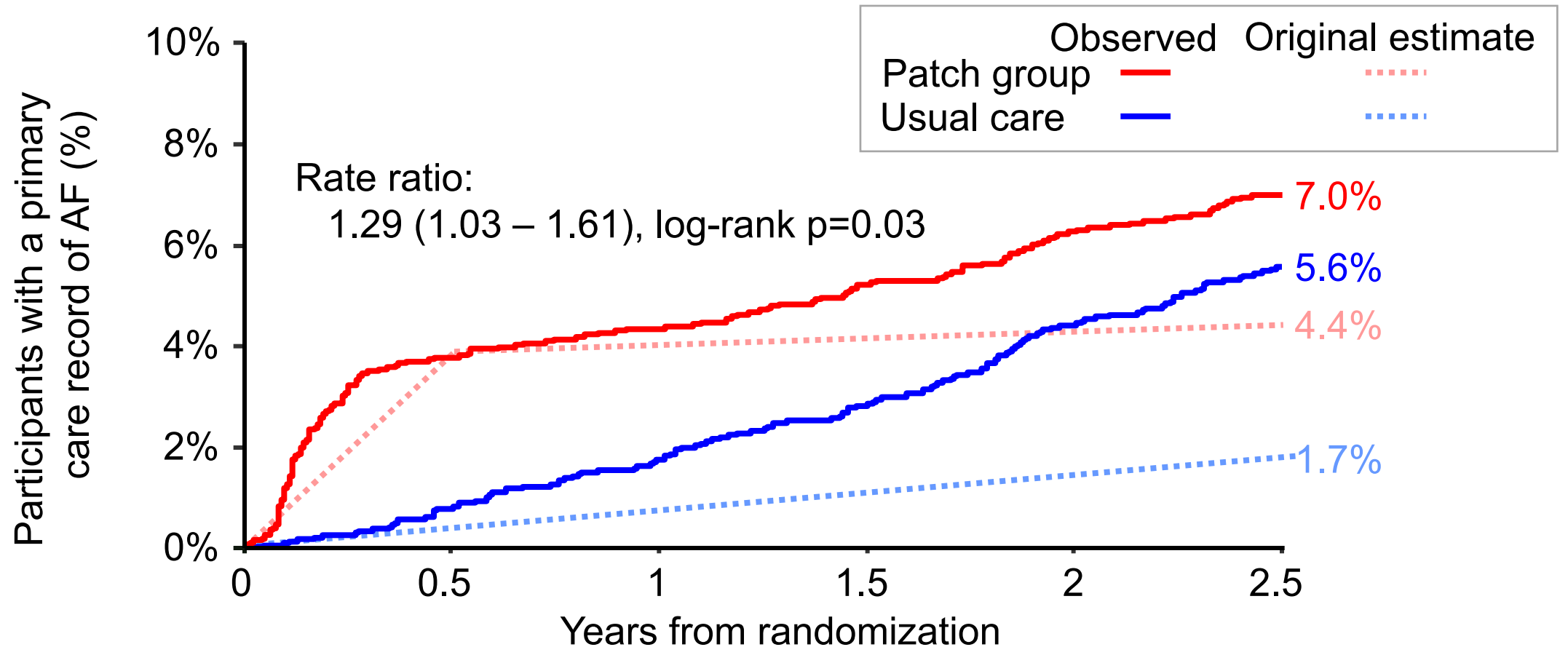
Baseline characteristics

	Patch group (N = 2,520)	Control (N = 2,520)
Age (years) – mean (SD)	77.7 (5.9)	77.7 (6.0)
Female	1180 (47%)	1180 (47%)
CHA ₂ DS ₂ VASc score – median (IQR)	4 (3 - 5)	4 (3 - 5)
Hypertension	2255 (89%)	2273 (90%)
Stroke or TIA	485 (19%)	478 (19%)

Primary outcome: Rate of AF detection at 2.5 years



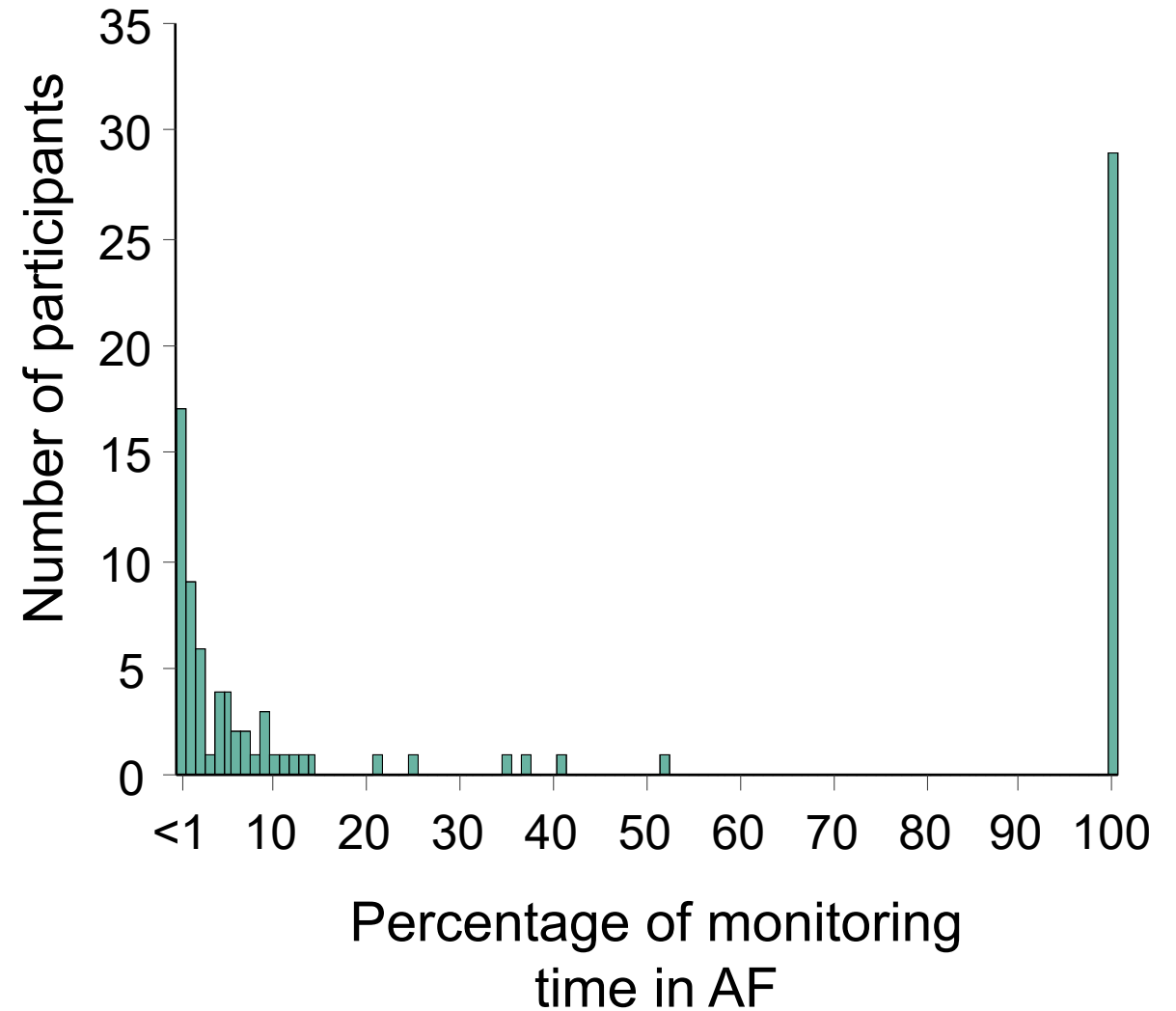
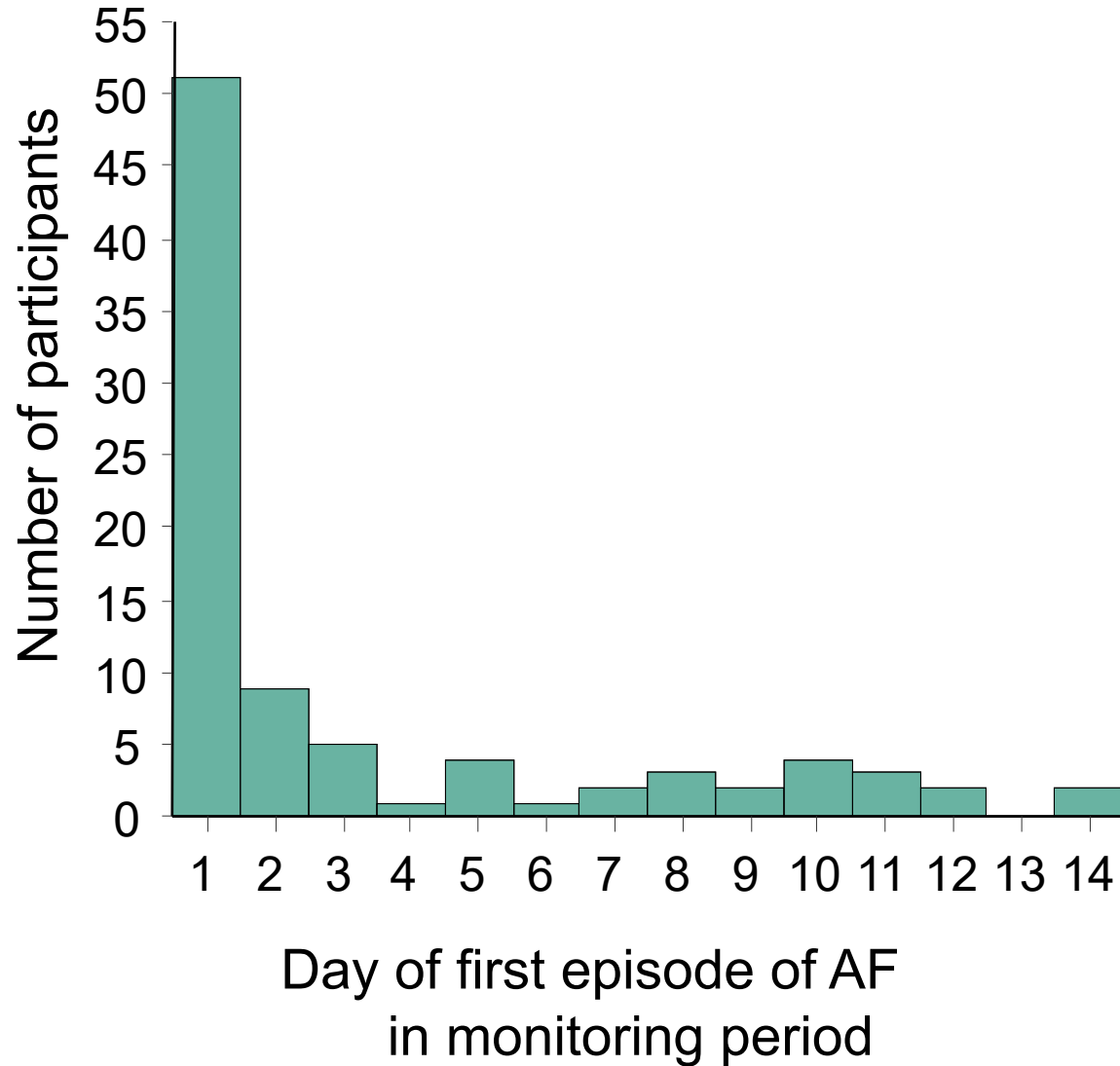
Time to first primary care record of AF by randomized allocation



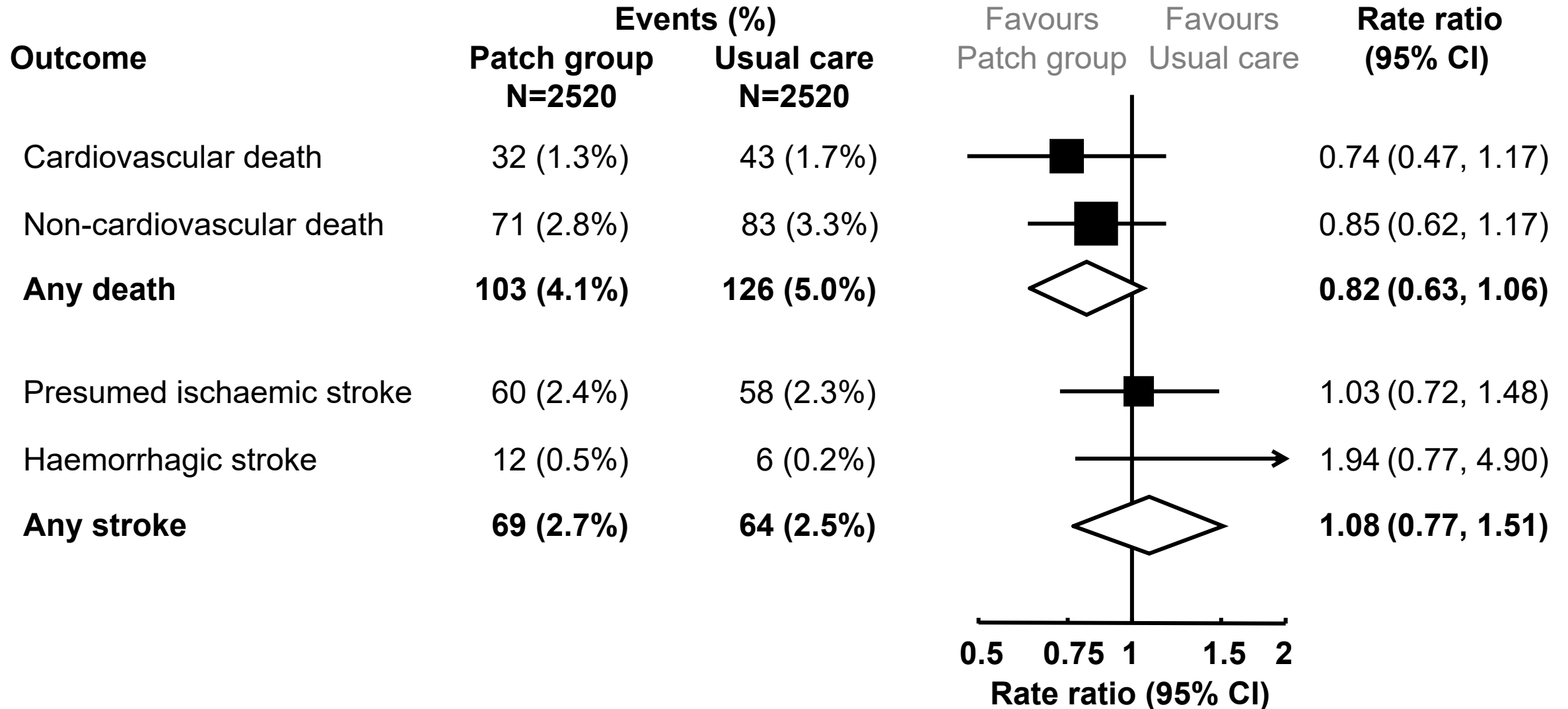
Number at risk

—	2520	2403	2338	2283	2219	2150
—	2520	2473	2416	2338	2253	2175

Patch-detected AF (n=89): onset & burden



Death and stroke by randomized allocation



Wijesurendra R, Pessoa-Amorim G, Buck G, et al

Remote Screening for Asymptomatic Atrial Fibrillation

The AMALFI Randomized Clinical Trial

Published Online August 29, 2025

European Society of Cardiology Congress

Available at jama.com



Scan to read the article

Take Home Messages



- Le dépistage des troubles de rythme (FA ++) pour prévenir les complications reste un véritable enjeu
- La rentabilité diagnostique est fonction de la durée d'enregistrement (FA ++)
- Nouveaux outils diagnostiques validés scientifiquement et faciles d'accès : une amélioration très significative de la détection de la FA silencieuse (Sujets à risque *)
- Le rapport coût-efficacité du dépistage de masse, l'hétérogénéité des populations concernées et les considérations légales restent encore une limite importante.