REVEAL AF STUDY RESULTS

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Further, Together

ATRIAL FIBRILLATION (AF)
AND RISK FOR STROKE

Stroke Prevalence	In 2013, the prevalence of stroke was 25.7 million and 6.5 million died of stroke[1]

Clinical Challenge	AF independently increases the risk of stroke 5-fold[1]
	▪ AF accounts for 1 in 4 strokes (80-89 years of age)[1]
	  ▪ Ischemic strokes associated with AF are nearly twice as likely to be fatal as non-AF strokes[2]
	  ▪ Stroke is the first symptom for ~20% of patients who have an AF-related stroke.[3]

AF Prevalence	Over 30 million people worldwide have documented AF[3,4] ▪ The prevalence of patients with risk factors for AF is much higher[5-6]

1. Benjamin EJ et al. Circulation 2017, 135:e146-e603
2. Lin HJ et al. Stroke. 1996; 27:1760-1764
3. Chugh SS. Circulation 2014; 129:837–847
4. Colilla S. Am J Cardiol 2013;112:1142–1147
5. World Bank estimates
6. World Heath Organization

STROKE AND AF
SIMILARITIES AMONG RISK FACTORS

$CHADS_2$ Score Evaluates ischemic stroke risk in patients with AF	CHA_2DS_2-VASc Score Evaluates ischemic stroke risk in patients with AF
▪ Congestive heart failure	▪ Congestive heart failure
▪ Hypertension	▪ Hypertension
▪ Age	▪ Age
▪ Diabetes	▪ Diabetes
▪ Stroke/TIA/ thromboembolism	▪ Stroke/TIA/ thromboembolism
	▪ Vascular disease
	▪ Sex

Note: These same risk factors also predict AF.

1. January CT, et al. Circulation. 2014; 23(130): 2071-2104.
2. Kirchhof P, et al. Europace. 2016; 11(18): 1609-1678.

CHALLENGES IN DIAGNOSING AF

- Symptoms are not a reliable indicator of AF
  - AF episodes are frequently asymptomatic[1-2]
  - Approximately 1 out of 5 symptoms thought to be AF are actually due to AF[1,3]
- AF is often paroxysmal
  - Difficult to detect with short-term and intermittent cardiac monitoring[4-6]

Longer-term, continuous monitoring may be beneficial in high-risk patients.

1. Strickberger AS et al. Heart Rhythm 2005;2:125-131.
2. Patten M et al. J Cardiovasc Electrophysiol. 2006;17:1216-20.
3. Quirino G et al. Pacing Clin Electrophysiol. 2009;32:91-8.
4. Hanke T et al. Circulation. 2009;120:S177-84.
5. Jabaudon D et al. Stroke. 2004;35:1647-51.
6. Choe WC et al. Am J Cardiol. 2015;116:889-93.

REVEAL AF STUDY
OBJECTIVES

GOAL: To demonstrate the value of early screening and detection of AF via ICM monitoring in high-risk patients.

END POINTS

Primary

- Determine the incidence rate of AF lasting greater than or equal to six minutes in patients who are at high risk of having AF.

Secondary

- Identify predictors of AF onset
- Characterize the timing and nature of clinical actions relative to detection of AF

Reiffel J, Verma A, Halperin JL, et al. Am Heart J. 2014; 1(167): 22-27.

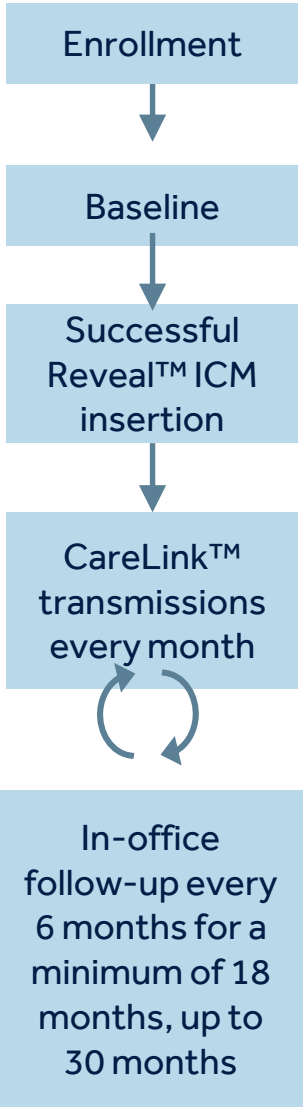
REVEAL AF STUDY
DESIGN AND PATIENT INCLUSION CRITERIA

STUDY DESIGN

- Prospective, single-arm, open-label, multi-center, post-market study

PATIENT INCLUSION CRITERIA

- A $CHADS_2$ score of ≥ 3 or $CHADS_2$ = 2 and at least 1 of the following:
  - Coronary artery disease
  - Renal impairment (GFR 30-60 ml/min)
  - Sleep apnea
  - Chronic obstructive pulmonary disease
- No AF found after 24-hours of cardiac monitoring.



Reiffel J, Verma A, Halperin JL, et al. Am Heart J. 2014; 1(167): 22-27.

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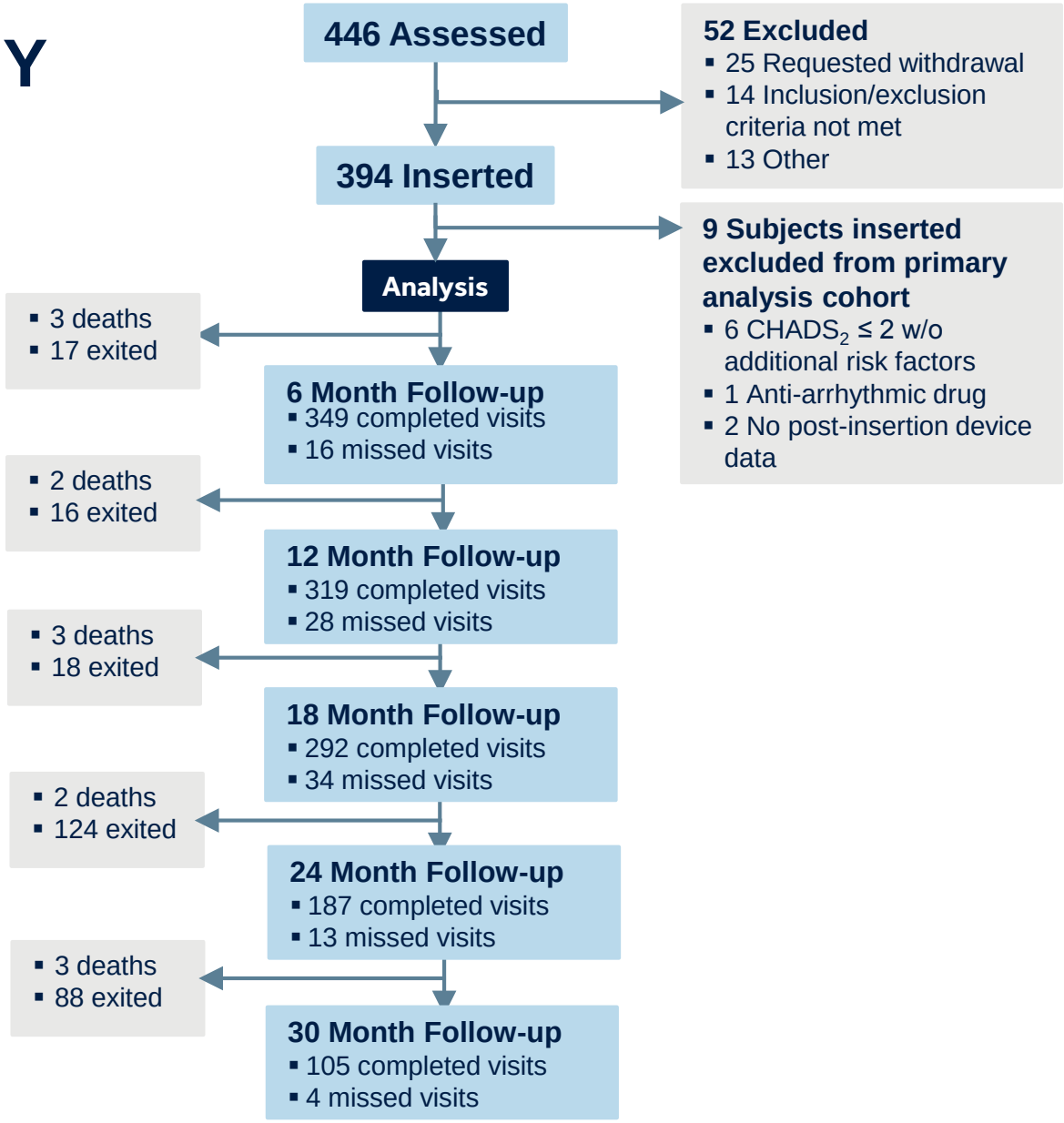
REVEAL AF STUDY
ENROLLMENT

385 patients
met the primary endpoint cohort definition

Mean follow-up:
22.5 ± 7.7 months



Reiffel JA, et al. Heart Rhythm Society Scientific Sessions. 2017.

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SUBJECT DEMOGRAPHICS AND MEDICAL HISTORY

Characteristic	Subjects with device insertion (N = 394)
Device inserted/attempted	
Reveal LINQ™ ICM	272 (69.0%)
Reveal™ XT ICM	122 (31.0%)
Gender: male	206 (52.3%)
Age	
Mean ± standard deviation (years)	71.6 ± 9.8
Under 65	88 (22.3%)
65 to 75	131 (33.3%)
75 and older	175 (44.4%)
Medical history	
Renal dysfunction	64 (16.2%)
Congestive heart failure	81 (20.6%)
Coronary artery disease	233 (59.1%)
Hypertension	369 (93.7%)
COPD	76 (19.3%)
Sleep apnea	104 (26.4%)
Diabetes	248 (62.9%)
Vascular disease	
Remote cerebrovascular accident (stroke)	80 (20.3%)
Remote transient ischemic attack	76 (19.3%)

Reiffel JA, Verma A, Kowey PR et al. Heart Rhythm. 2017 In Press.

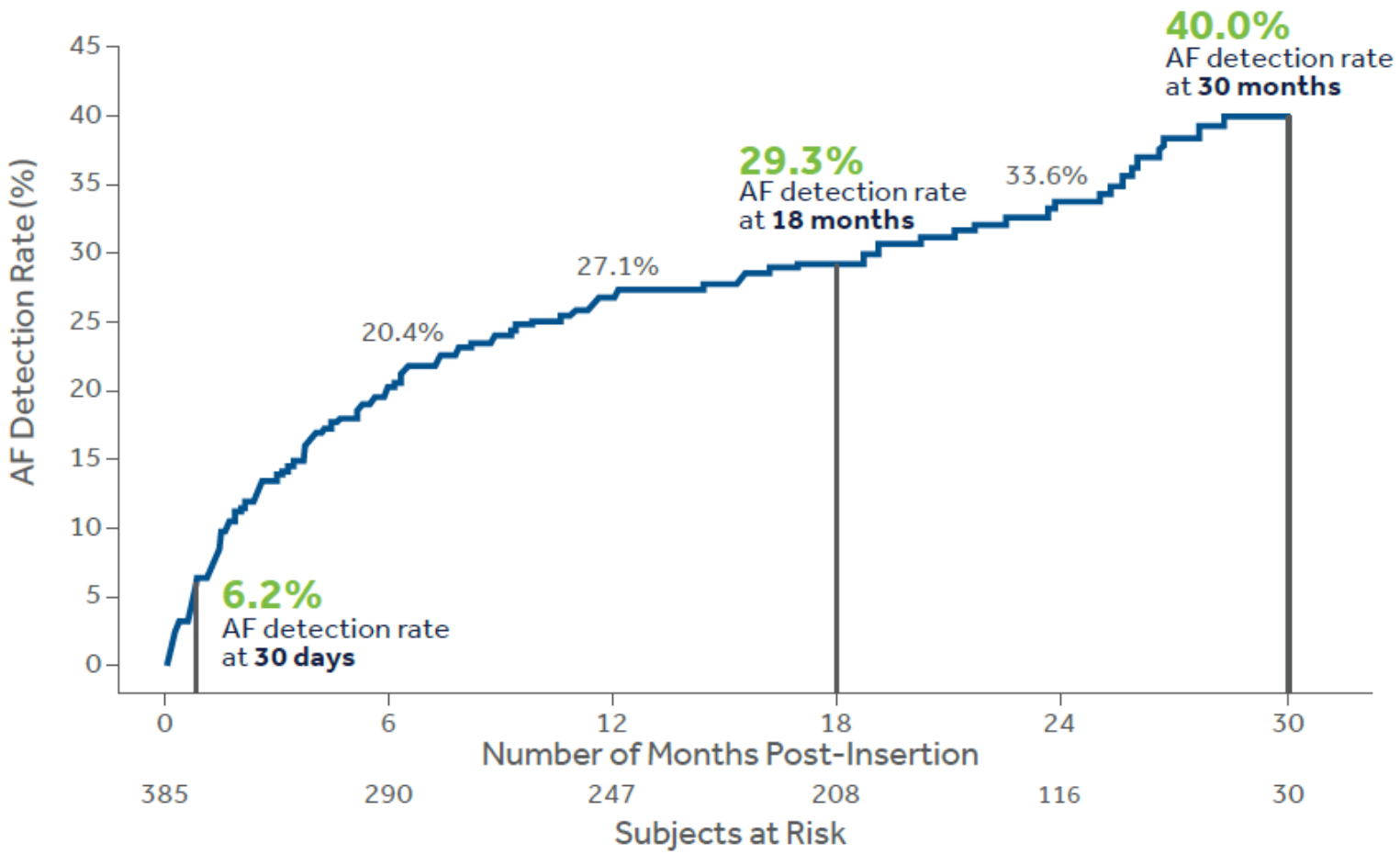
$CHADS_2$ AND CHA_2DS_2-VASc SCORES

Characteristic	Subjects with device insertion (N = 394)
$CHADS_2$ score	
Mean ± standard deviation	2.9 ± 0.8
1	1 (0.3%)
2	158 (40.0%)
3	130 (33.2%)
4 or more	105 (26.6%)
CHA_2DS_2-VASc score	
Mean ± standard deviation	4.4±1.3
2	25 (6.3%)
3	79 (20.1%)
4	112 (28.4%)
5	100 (25.4%)
6	53 (13.5%)
7 or more	25 (6.3%)

$CHADS_2$ subgroups of 2, 3 and 4 or more were well represented

Reiffel JA, et al. Heart Rhythm Society Scientific Sessions. 2017.

INCIDENCE OF ADJUDICATED AF
LASTING ≥ 6 MINUTES IN DURATION



Reiffel JA, et al. Heart Rhythm Society Scientific Sessions. 2017.

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INCIDENCE OF ADJUDICATED AF LASTING ≥ 6 MINUTES IN DURATION

40%

AF detection rate at 30 months.

123 Days

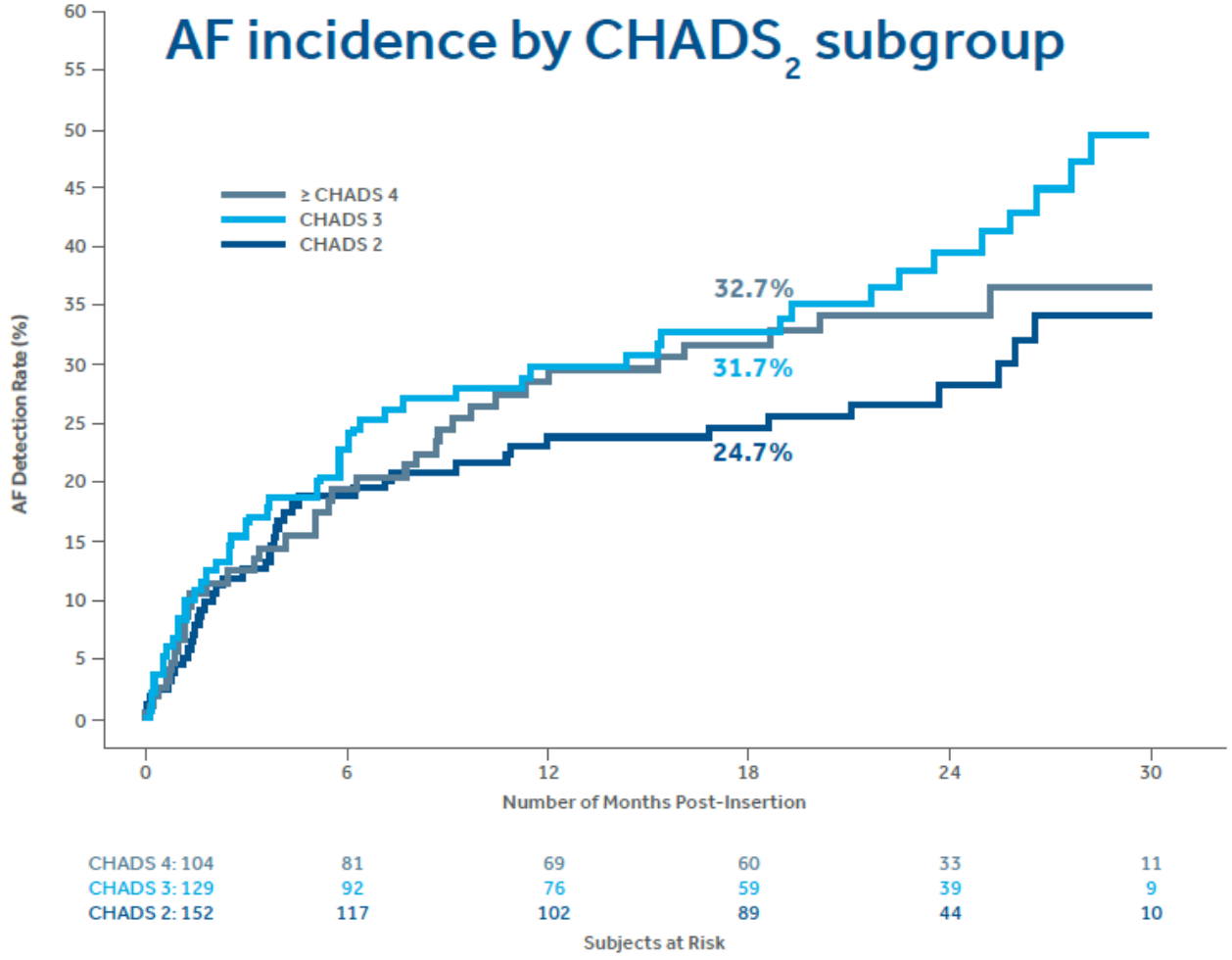
was the median time to AF detection in high-risk patients.

84.5%

of patients with AF would have been missed if only monitored for 30 days.

Reiffel JA, et al. Heart Rhythm Society Scientific Sessions. 2017.

AF INCIDENCE BY CHADS$_2$ SUBGROUP



There was no significant difference in detection rates between patients with CHADS$_2$ 2, 3, and 4 or more.

Reiffel JA, et al. Heart Rhythm Society Scientific Sessions. 2017.

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AF EPISODE DURATION AND CLINICAL ACTIONS

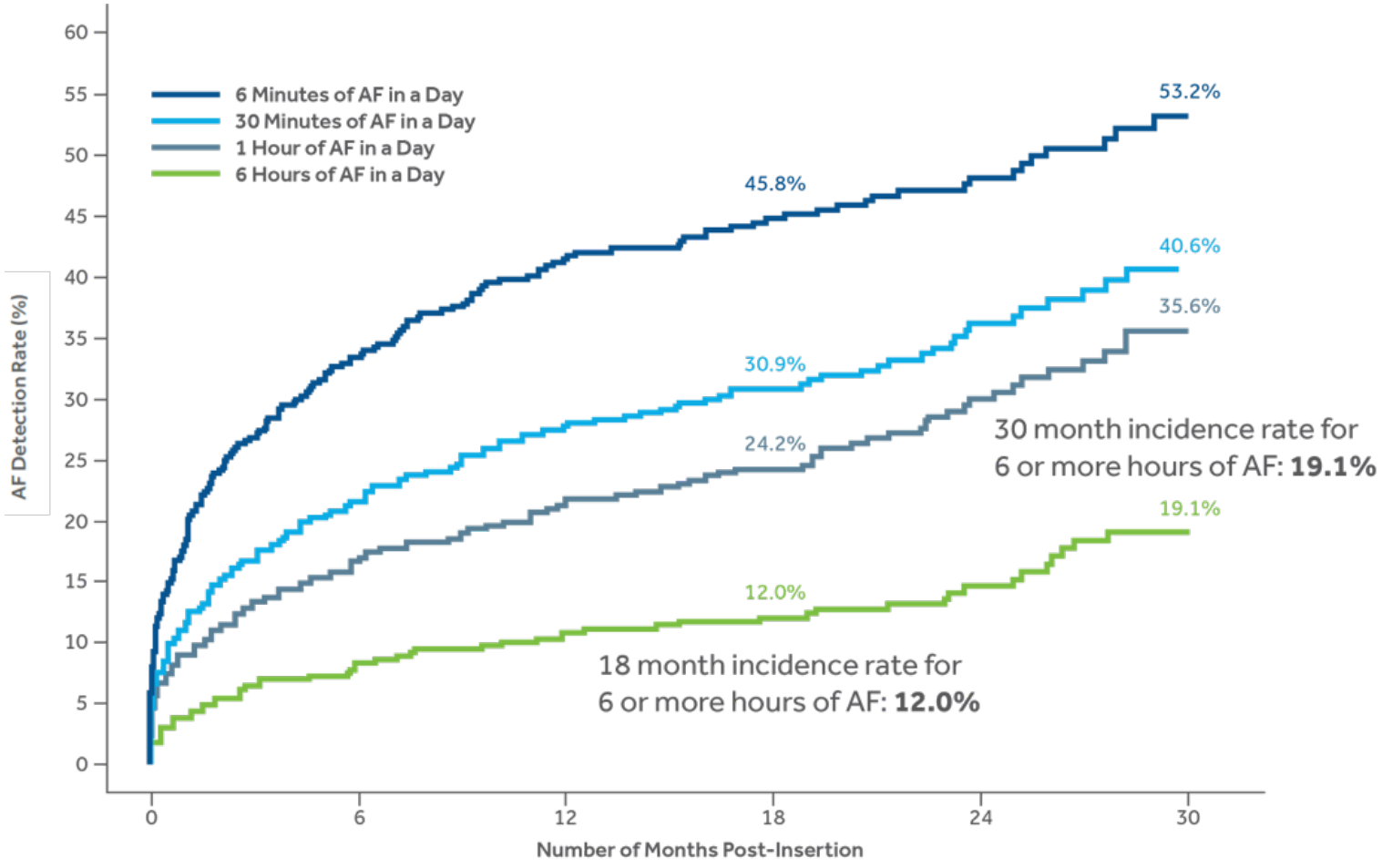
Among patients who met the primary outcome of ≥6 minutes of AF:

10.2%	56.3%	14.8%
had at least one episode lasting ≥24 hours	were prescribed OAC during follow-up	were prescribed rhythm-control medication during follow-up

AF detected through ICM monitoring was found to be actionable by physicians.

Reiffel JA, et al. Heart Rhythm Society Scientific Sessions. 2017.

TIME TO ONSET OF DAILY AF BURDEN



NOTE: This analysis includes episodes < 6 minutes in duration, which were not adjudicated.
Episode duration attributed to episodes that were adjudicated to be non-AF were excluded from the analysis.

Reiffel JA, et al. Heart Rhythm Society Scientific Sessions. 2017.

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SUBJECT CHARACTERISTICS
PREDICTIVE OF AF ONSET

Age and BMI were the only clinical characteristics independently predictive of AF, with AF incidence higher in older and more obese patients.

Characteristics	Hazard Ratio	P-value
Age (years)	**1.079**	**<.0001**
Body mass index	**1.042**	**0.0198**
Gender (male)	1.122	0.5398
Diabetes	1.117	0.5688
Heart failure	1.090	0.7053
Hypertension	1.252	0.5541
Renal impairment	0.918	0.6400
Chronic obstructive pulmonary disease	0.743	0.2410
Stroke	1.049	0.8679
Coronary artery disease	0.788	0.2319
Sleep apnea	0.736	0.2083
Family history of atrial fibrillation	1.923	0.1797
Vascular disease	0.883	0.6066

Reiffel JA, et al. Heart Rhythm Society Scientific Sessions. 2017.

REVEAL AF STUDY
SUMMARY

AF is common in patients at high risk for AF and stroke.	**84.5% of patients with AF would have been missed** with just 30 days of monitoring.	AF detected through Reveal ICM was found to be actionable by physicians.	AF detection did not differ between $CHADS_2$ subgroups.

"Data from the Reveal AF Study may have important public health implications regarding prophylactic AF screening and treatment in high-risk patients."

Reiffel JA, et al. Heart Rhythm Society Scientific Sessions. 2017.

INDICATIONS, SAFETY, AND WARNINGS

If you are located in the United States, please refer to the brief statement below to review applicable indications, safety, and warning information. See the device manual for detailed information regarding the implant procedure, indications, contraindications, warnings, precautions, and potential complications/adverse events. For further information, please call Medtronic at 763-514-4000 and/or consult the Medtronic website at medtronic.com.

If you are located outside the United States, see the device manual for detailed information regarding the implant procedure, indications, contraindications, warnings, precautions, and potential adverse events. For further information, contact your local Medtronic representative and/or consult the Medtronic website at medtronic.com.

Consult instructions for use at this website. Manuals can be viewed using a current version of any major Internet browser. For best results, use Adobe Acrobat Reader® with the browser.

Important Reminder: This information is intended only for users in markets where Medtronic products and therapies are approved or available for use as indicated within the respective product manuals. Content on specific Medtronic products and therapies is not intended for users in markets that do not have authorization for use.

Reveal LINQ™ LNQ11 Insertable Cardiac Monitor and Patient Assistant

Indications
Reveal LINQ™ LNQ11 Insertable Cardiac Monitor
The Reveal LINQ insertable cardiac monitor is an implantable patient-activated and automatically-activated monitoring system that records subcutaneous ECG and is indicated in the following cases:
- Patients with clinical syndromes or situations at increased risk of cardiac arrhythmias
- Patients who experience transient symptoms such as dizziness, palpitation, syncope, and chest pain, that may suggest a cardiac arrhythmia

This device has not been specifically tested for pediatric use.

Patient Assistant
The Patient Assistant is intended for unsupervised patient use away from a hospital or clinic. The Patient Assistant activates the data management feature in the Reveal™ insertable cardiac monitor to initiate recording of cardiac event data in the implanted device memory.

Contraindications
There are no known contraindications for the implant of the Reveal LINQ insertable cardiac monitor. However, the patient's particular medical condition may dictate whether or not a subcutaneous, chronically implanted device can be tolerated.

Warnings/Precautions
Reveal LINQ™ LNQ11 Insertable Cardiac Monitor
Patients with the Reveal LINQ insertable cardiac monitor should avoid sources of diathermy, high sources of radiation, electrosurgical cautery, external defibrillation, lithotripsy, therapeutic ultrasound, and radiofrequency ablation to avoid electrical reset of the device, and/or inappropriate sensing as described in the Medical procedure and EMI precautions manual. MRI scans should be performed only in a specified MR environment under specified conditions as described in the Reveal LINQ MRI Technical Manual.

INDICATIONS, SAFETY, AND WARNINGS

Patient Assistant
Operation of the Patient Assistant near sources of electromagnetic interference, such as cellular phones, computer monitors, etc., may adversely affect the performance of this device.

Potential Complications
Potential complications include, but are not limited to, device rejection phenomena (including local tissue reaction), device migration, infection, and erosion through the skin.
Caution: Federal law (USA) restricts this device to sale by or on the order of a physician.

Medtronic MyCareLink™ Patient Monitor, Medtronic CareLink™ Network, and CareLink™ Mobile Application

Intended Use
The Medtronic MyCareLink™ patient monitor and CareLink™ network are indicated for use in the transfer of patient data from some Medtronic implantable cardiac devices based on physician instructions and as described in the product manual. The CareLink™ mobile application is intended to provide current CareLink network customers access to CareLink network data via a mobile device for their convenience. The CareLink mobile application is not replacing the full workstation, but can be used to review patient data when a physician does not have access to a workstation. These products are not a substitute for appropriate medical attention in the event of an emergency and should only be used as directed by a physician. CareLink network availability and mobile device accessibility may be unavailable at times due to maintenance or updates, or due to coverage being unavailable in your area. Mobile device access to the Internet is required and subject to coverage availability. Standard text message rates apply.

Contraindications
There are no known contraindications.

Warnings and Precautions
The MyCareLink patient monitor must only be used for interrogating compatible Medtronic implantable devices.

See the device manual for detailed information regarding the implant procedure, indications, contraindications, warnings, precautions, and potential implications/adverse events. For further information, please call Medtronic at 1-800-328-2518 and/or consult the Medtronic website at medtronic.com.

Caution: Federal law (USA) restricts this device to sale by or on the order of a physician.

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