

# The Power of Health Care Systems to Deliver Guideline-Recommended Care for Atrial Fibrillation (AF) Stroke Risk Reduction

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Note: Speakers do not have any disclosures.

# HRS Vision and Mission



- Global, nonprofit medical society
- Leading resource for electrophysiology and heart rhythm care
- Over 7000 members representing medical, allied health, and science professionals
- More than 70 countries represented

## MISSION

To improve the care of patients by promoting research, education, and optimal health care policies and standards

## VISION

To end death and suffering due to heart rhythm disorders

# Burden of AF

## AF is a growing health care concern in the United States

A retrospective study with a natural history progression model showed  
**THE PREVALENCE OF AF IS EXPECTED TO INCREASE<sup>1</sup>**



**5.2 million**



**12.1 million**

The prevalence is expected to grow from 5.2 million cases in 2010 to nearly 12.1 million cases in 2030<sup>1</sup>

Patients with AF are nearly  
**5X** as likely  
to have a  
**stroke**  
than patients without AF<sup>2</sup>

Stroke risk attributed to AF significantly increases with age ( $\geq 50$  years old)<sup>2</sup>

In an analysis of the National (Nationwide) Inpatient Sample (NIS), 2003-2014, Acute ischemic stroke in patients with AF is associated with **higher morbidity, longer hospital length of stay (LOS), and higher costs** vs stroke not related to AF<sup>3</sup>

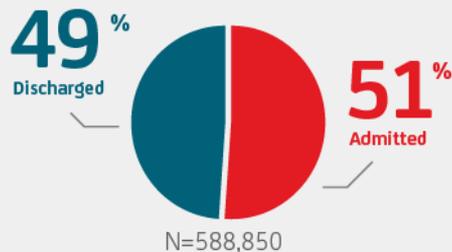
# Burden of AF

Based on weighted estimates from the HCUP National Emergency Department Sample (NEDS),\*

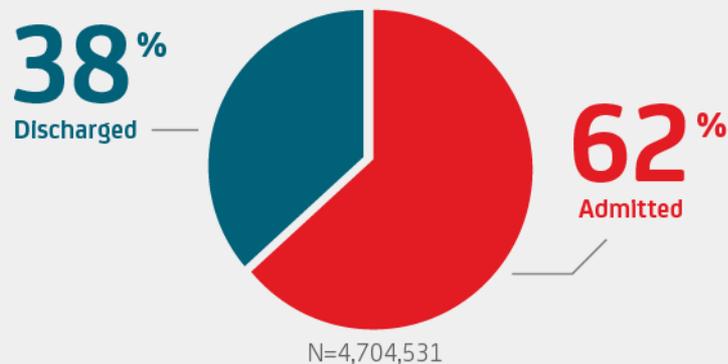
## more than half of emergency department (ED) visits for patients with AF resulted in hospitalization<sup>1</sup>

### PROPORTION OF ED VISITS ADMITTED OR DISCHARGED, 2016\*

#### Patients with AF as a primary diagnosis



#### Patients with AF as a secondary diagnosis



Discharged from ED

ED visits that resulted in an inpatient stay at the same facility

Primary AF diagnosis refers to AF as the principal diagnosis. Secondary AF diagnosis refers to AF as the nonprincipal diagnosis.

HCUP=Healthcare Cost and Utilization Project.

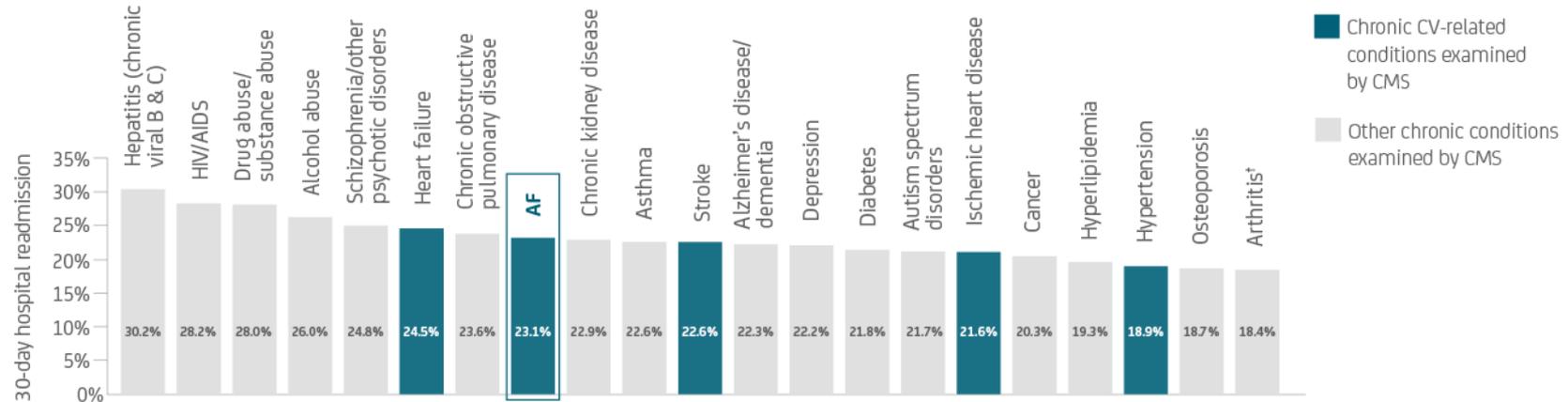
\*Weighted national estimates from 2016 HCUP NEDS, Agency for Healthcare Research and Quality (AHRQ), based on data collected by individual states and provided to AHRQ by the states. Total number of weighted visits in the United States based on HCUP NEDS was 144,842,742. Estimates based on International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM) principal and nonprincipal diagnosis codes that identify atrial fibrillation: I48.0, I48.1, I48.2, and I48.91.

Reference: 1. Agency for Healthcare Research and Quality. HCUPnet: A tool for identifying, tracking, and analyzing national hospital statistics. <https://hcupnet.ahrq.gov/#setup>. Accessed September 17, 2019.

# Burden of AF

The national 30-day readmission rate for Medicare patients with AF is 23%, comparable with other chronic CV conditions<sup>1\*</sup>

NATIONAL 30-DAY READMISSION RATES FOR 21 CHRONIC CONDITIONS EXAMINED BY CMS



CV=cardiovascular.

\*Hospital readmissions are expressed as a percentage of all admissions. A 30-day readmission is defined as an admission to an acute care hospital for any cause within 30 days of discharge from an acute care hospital. Except when the patient died during the stay, each inpatient stay is classified as an index admission, a readmission, or both. The data used in the chronic condition reports are based upon CMS administrative enrollment and claims data for Medicare beneficiaries enrolled in the FFS program. The information is limited to Medicare FFS beneficiaries residing in the 50 states and the District of Columbia, who were continuously enrolled in Medicare FFS, Parts A and B, for 2017. Beneficiaries who were enrolled in the MA plan were excluded.

<sup>†</sup>Includes rheumatoid arthritis and osteoarthritis.

Reference: 1. Centers for Medicare & Medicaid Services. State Table Chronic Conditions Utilization Spending, 2007-2017. [https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Downloads/CC\\_Util\\_Spend\\_State.zip](https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Chronic-Conditions/Downloads/CC_Util_Spend_State.zip). Accessed August 22, 2019.

# 2019 AHA/ACC/HRS Focused Update of the 2014 AHA/ACC/HRS Guideline for the Management of Patients With AF



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

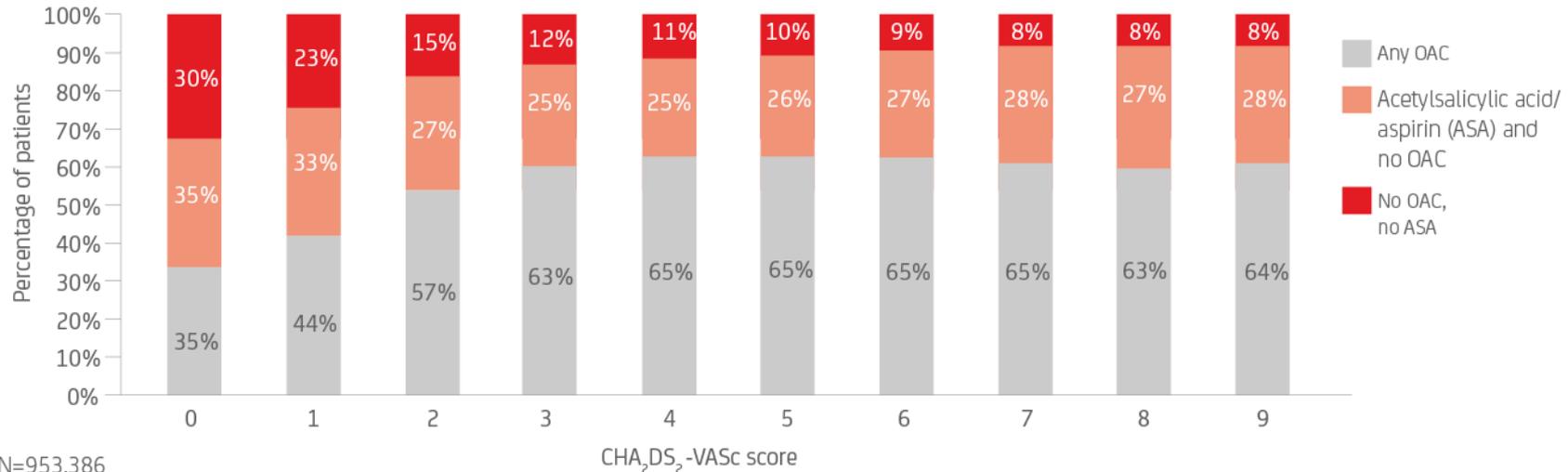
It is estimated that it takes an average of 9 years for interventions recommended as evidence-based practices (EBPs) to be fully adopted.<sup>1,2</sup>

**References:** 1. Balas EA, Boren SA. Managing clinical knowledge for health care improvement. In: Bemmel J, McCray AT, eds. *Yearbook of Medical Informatics 2000: Patient-Centered Systems*. Schattauer Verlagsgesellschaft mbH; 2000:65-70. 2. Green LW, Ottoson JM, García C, Hiatt RA. Diffusion theory and knowledge dissemination, utilization, and integration in public health. *Annu Rev Public Health*. 2009;30:151-174. doi:10.1146/annurev.publhealth.031308.100049

# AF and Oral Anticoagulants (OACs): Gaps in Care

Real-world data show that many patients at higher risk for stroke are not treated with anticoagulants<sup>1</sup>

DISTRIBUTION OF THERAPIES FOR PATIENTS WITH AF, BY CHA<sub>2</sub>DS<sub>2</sub>-VASc SCORES\*



N=953,386

Percentages may not add to 100% due to rounding.

\*Based on data from the National Cardiovascular Data Registry (NCDR) Practice Innovation and Clinical Excellence (PINNACLE) Registry quarterly report and may not represent actual numbers in your system. The PINNACLE Registry is an ongoing database predominantly composed of cardiology outpatient EHRs.

Reference: 1. Data on file. National Cardiovascular Data Registry (NCDR). PINNACLE Registry. PINNACLE-AF Q3 2017.

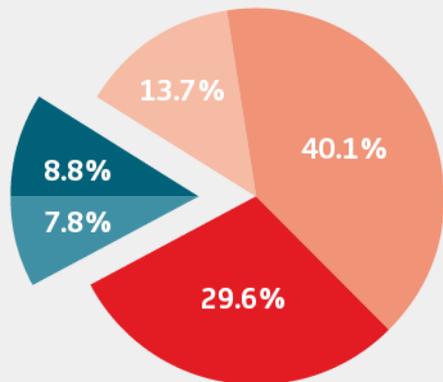
# AF and OACs: Gaps in Care

In a 2012-2015 retrospective study from the Patient-Centered Outcomes Research Institute (PCORI),  
**~84% of patients with AF hospitalized for acute ischemic stroke had not received therapeutic anticoagulation pre-stroke<sup>1</sup>**

PRE-STROKE ANTITHROMBOTIC THERAPY IN PATIENTS (CHA<sub>2</sub>DS<sub>2</sub>-VASC SCORE ≥2)  
WITH AF AND ACUTE ISCHEMIC STROKE\*

**16.4%**

Received therapeutic  
anticoagulation



**83.5%**

Did not receive therapeutic  
anticoagulation

Percentages may not add  
to 100% due to rounding.

■ DOAC

■ warfarin INR ≥2

■ warfarin INR <2

■ Antiplatelet therapy only

■ No antithrombotic

n=91,155\*

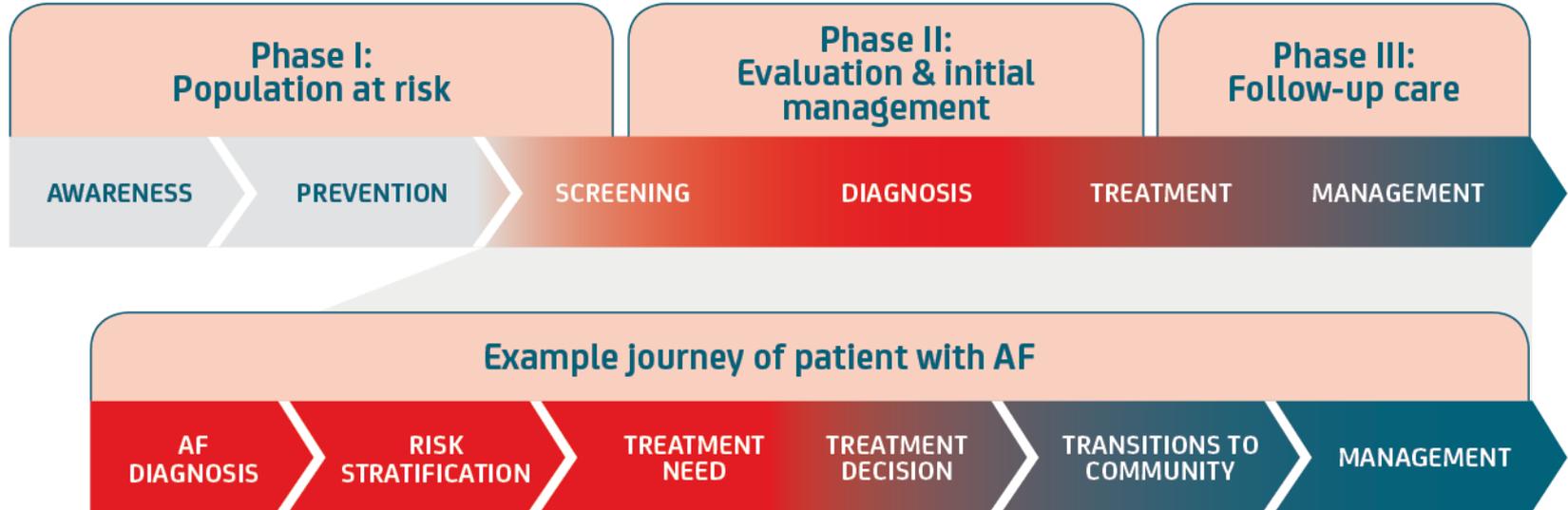
\*This analysis included a total of 94,474 patients with a known history of AF or atrial flutter who had experienced an AIS and were admitted from October 2012 through March 2015 to hospitals participating in Get With The Guidelines–Stroke (GWTG–Stroke) program. Of those patients, 91,155 were at high risk for stroke (pre-stroke CHA<sub>2</sub>DS<sub>2</sub>-VASC score ≥2).

Reference: 1. Xian Y, O'Brien EC, Liang L, et al. Association of preceding antithrombotic treatment with acute ischemic stroke severity and in-hospital outcomes among patients with atrial fibrillation. *JAMA*. 2017;317(10):1057-1067.

# Health System Approaches

## The National Quality Forum (NQF) has developed a care model<sup>1</sup>

This model demonstrates one way a health system may address stroke-risk management by incorporating the measurement domains essential for evaluating care at both the system and health care provider (HCP) levels.

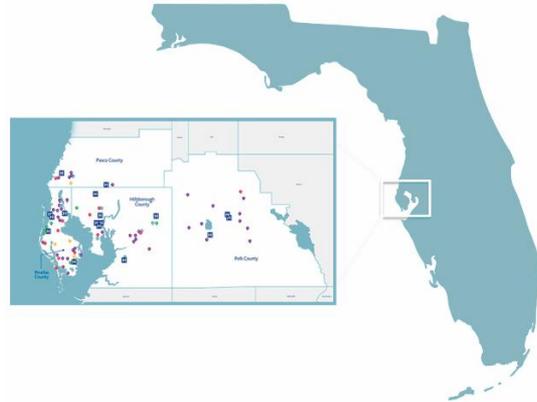


This example journey of a patient with AF is based on market research conducted with HCPs and patients and may not represent the journey of a patient with AF within a specific organization.

# BayCare

BayCare is a leading not-for-profit health care system that connects individuals and families to a wide range of services at 15 hospitals and hundreds of other convenient locations throughout the Tampa Bay and West Central Florida regions.

BayCare is a Medicare Shared Savings Program Track 3 with a CMS risk-based contract to include both upside and downside financial risk.

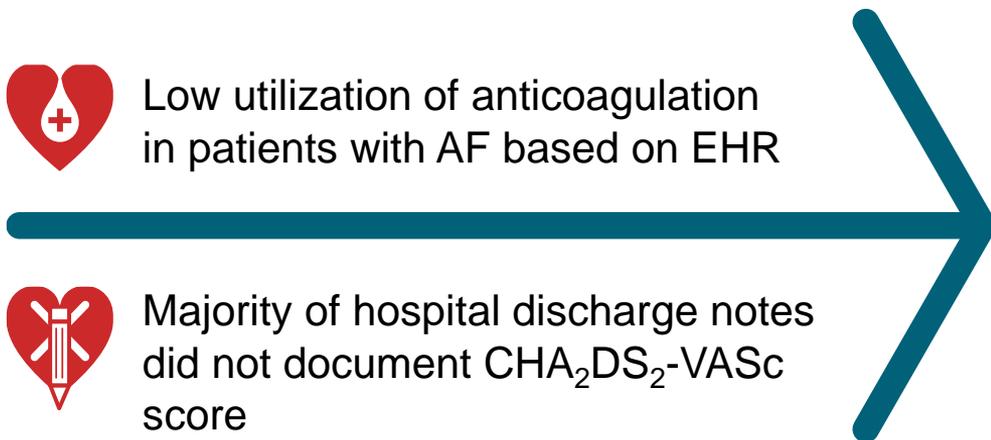




Low utilization of anticoagulation  
in patients with AF based on EHR



Majority of hospital discharge notes  
did not document CHA<sub>2</sub>DS<sub>2</sub>-VASC  
score



**Based on a patient's  
CHA<sub>2</sub>DS<sub>2</sub>-VASC score,  
providers recognize the  
need to anticoagulate  
appropriately based  
on evidence-based  
guidelines**





- Built a communication tool and shared it with stakeholders
- Developed and implemented an AF quality metric for cardiology and inpatient for 2020
- Added an incentive around that quality metric that impacts quality bonus for compliance with the new process
- Communicated quality metrics and changes in workflow throughout cardiology and inpatient

Cerner EMR Communication

## New CHADS2/VASc and HAS Bled Scores PowerForm

Effective **January 30, 2019**, a new standalone **CHADS2/VASc** and **HAS Bled Scores** PowerForm is available in the AdHoc Cardiovascular folder.

This new PowerForm and the existing CHADS2 sections within the *Cardiovascular History Adult* form and the *Referral for Left Atrial Appendage Closure* have been updated with the following:

- The **Contraindication if Not on Anticoagulation** field is conditional based on selection of **No** in the *On Anticoagulation* field.
- Selections for **CHADS2/VASc** and **HAS Bled Score** are numeric radio buttons and information pulls forward from previous encounters.
- Blue text added for clinical guidance.

**CHADS2/VASc and HAS Bled Scores**

On Anticoagulation:  Yes  No

Contraindication if Not on Anticoagulation:

Prolonged QT, GI or other serious comorbidity  Previous Left Atrial Appendage Closure or Stroke or Atrial Fibrillation

Prior stroke or transient ischemic attack  Previous GI bleed, hemorrhage or stroke

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**CHADS2/VASc:**

|                         |                         |  |
|-------------------------|-------------------------|--|
| <input type="radio"/> 0 | <input type="radio"/> 1 | Concurrent heart failure: Clinical heart failure (any decompensation) occurring only within the last 90 days regardless of the presence of medical device therapy. |
| <input type="radio"/> 0 | <input type="radio"/> 1 | Hypertension: Resting BP > 160/95 mmHg on at least 2 occasions or current anti-hypertensive pharmacologic treatment.   |
| <input type="radio"/> 0 | <input type="radio"/> 1 | Diabetes mellitus: Fasting glucose >126mg/dl or treatment with oral hypoglycemic agent and/or insulin.   |
| <input type="radio"/> 0 | <input type="radio"/> 2 | Stroke, TIA or TE: Includes any history of cerebral ischemia.  |
| <input type="radio"/> 0 | <input type="radio"/> 1 | Vascular disease: Prior MI, peripheral arterial disease, or aortic plaque.   |
| <input type="radio"/> 0 | <input type="radio"/> 1 | Age 65 to 74 years.  |
| <input type="radio"/> 0 | <input type="radio"/> 2 | Age 75 years or older.   |
| <input type="radio"/> 0 | <input type="radio"/> 1 | Sex Category (female): gender codes begin risk as "1". Female risk is "0".   |

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|  |                         |   |
|--|-------------------------|---|
| <b>Scores for Atrial Fibrillation Stroke Risk</b>          |                         | <b>Adjusted Stroke Rate on No Anticoagulation</b> |
| <b>Treatment Recommendation Based on CHADS2/VASc Score</b> | <b>0-1</b>              | <b>2-3</b>  |
| 0-1 have no aspirin or OAC                                 | 2 points: 0% per year   | 5 points: 0.7% per year                           |
| 2-3 have no aspirin or OAC                                 | 3 points: 1.2% per year | 6 points: 1.8% per year                           |
| 4-5 have no aspirin or OAC                                 | 4 points: 2.2% per year | 7 points: 2.8% per year                           |
|  | 5 points: 3.2% per year | 8 points: 3.7% per year                           |
|  | 6 points: 4% per year   | 9 points: 4.6% per year                           |

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**HAS Bled Score:**

|                         |                         |   |
|-------------------------|-------------------------|---|
| <input type="radio"/> 0 | <input type="radio"/> 1 | Hypertension history (uncontrolled, >168 mmHg systolic)                   |
| <input type="radio"/> 0 | <input type="radio"/> 1 | Renal disease: dialysis, hemoglobin <12g or HbA1c >200umol/L              |
| <input type="radio"/> 0 | <input type="radio"/> 1 | Liver disease: Cirrhosis (Bilirubin >2x normal or AST/ALT/AlP >3x normal) |
| <input type="radio"/> 0 | <input type="radio"/> 1 | Stroke history  |
| <input type="radio"/> 0 | <input type="radio"/> 1 | Prior major bleeding or predisposition to bleeding                        |
| <input type="radio"/> 0 | <input type="radio"/> 1 | Labile INR (unstable/high INRs, time in therapeutic range < 65%)          |
| <input type="radio"/> 0 | <input type="radio"/> 1 | Age > 65  |
| <input type="radio"/> 0 | <input type="radio"/> 1 | Medication usage (predisposing to bleeding/antiplaquet agents, NSAIDs)    |
| <input type="radio"/> 0 | <input type="radio"/> 1 | Alcohol or drug usage history (1 or > 10 g drinks/week)                   |

Estimates risk of major bleeding for patients on anticoagulation for atrial fibrillation



Documentation of the CHA<sub>2</sub>DS<sub>2</sub>-VASc score has increased to 51% from less than 20%



Providers offered positive and constructive feedback

“Quality health care means doing the right thing at the right time in the right way for the right person and having the best results possible.”

—Definition of Quality, BayCare Team Member Training



Ongoing analytics regarding documentation of CHA<sub>2</sub>DS<sub>2</sub>-VASc and appropriate guideline-based anticoagulation management



Adding an additional provider compensation incentive for implementation and sustainability of the population health solution

# Houston Methodist Coordinated Care Accountable Care Organization (HMCC ACO)

## HMCC ACO Prioritizes AF as a Quality Initiative

- High Value Primary Care network includes 70 primary care practices within the greater Houston area with over 250 providers caring for 33,000 Medicare FFS beneficiaries
- A Medicare Shared Savings Program with a CMS risk-based contract to include both upside and downside financial risk
- Had the highest CMS quality metrics score of 99.5% last year nationally for Medicare Shared Savings Track 3 programs





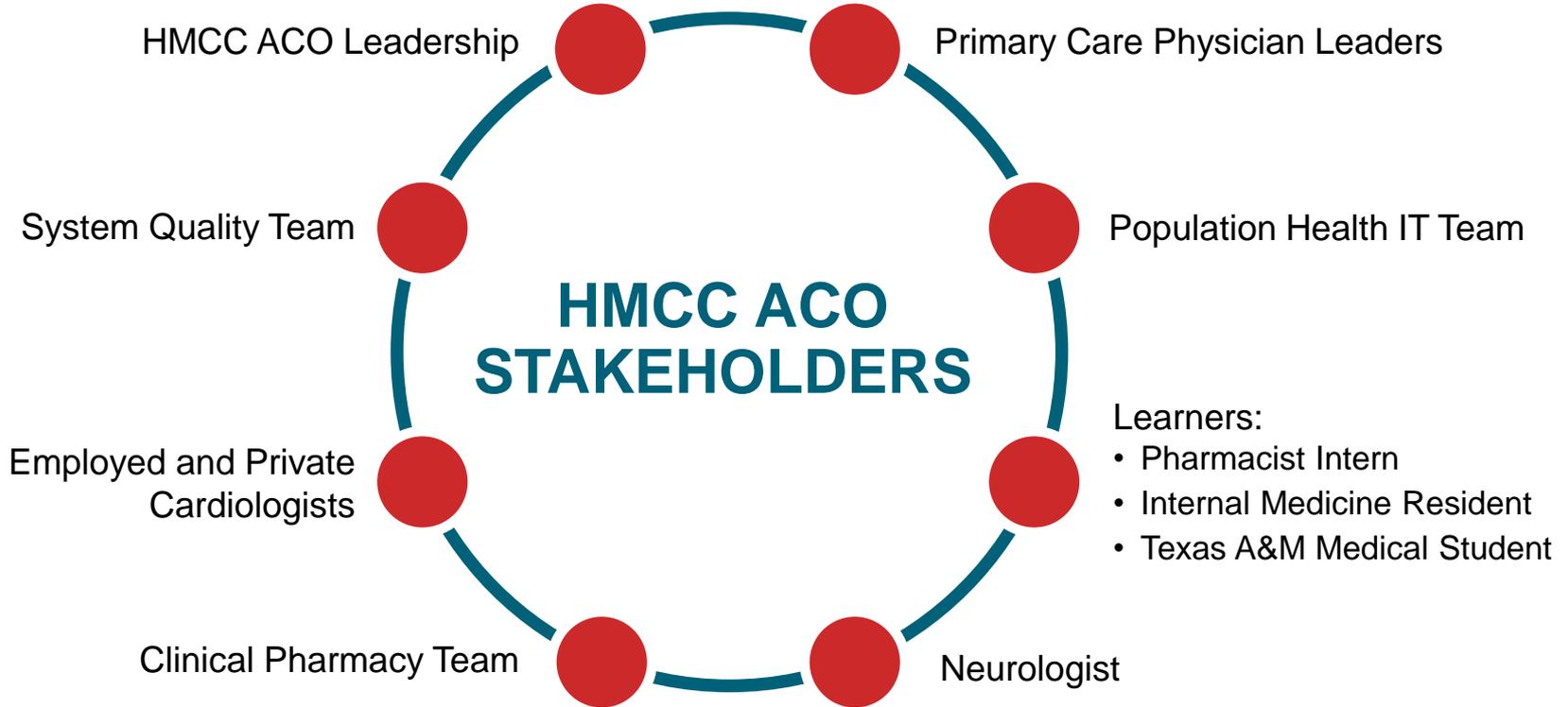
Patients with AF have an ~5-fold increased risk for stroke compared with those without AF<sup>1</sup>



Medicare Shared Savings Program ACOs with financial risk are responsible for an aging vulnerable population at increased risk for AF



Medicare Shared Savings Program and bundle populations are growing and fit into a quality improvement strategy for at-risk patients to improve outcomes for patients with AF



## Goal: Educate patients on AF and stroke risk within primary care practices

Integration of AF screening of 200 at-risk patients with a technology-enabled device within a busy primary care practice **did not slow down workflow**

**94% of patients** expressed increased awareness about stroke risk after AF screening

Primary care physicians **gained additional medical history with an AF screening** pilot that generated referrals

**Opportunity to engage learners** (medical students, residents, and fellows); provides education and research opportunities for posters, abstracts, and papers





## Primary Care Provider Education

- Grand rounds for primary care providers on AF and stroke risk reduction
- CHA<sub>2</sub>DS<sub>2</sub>-VASc Best Practices handouts provided to primary care providers
- Identify and educate regarding the need for appropriate provider documentation of reasons for not utilizing anticoagulation in patients at high risk for stroke



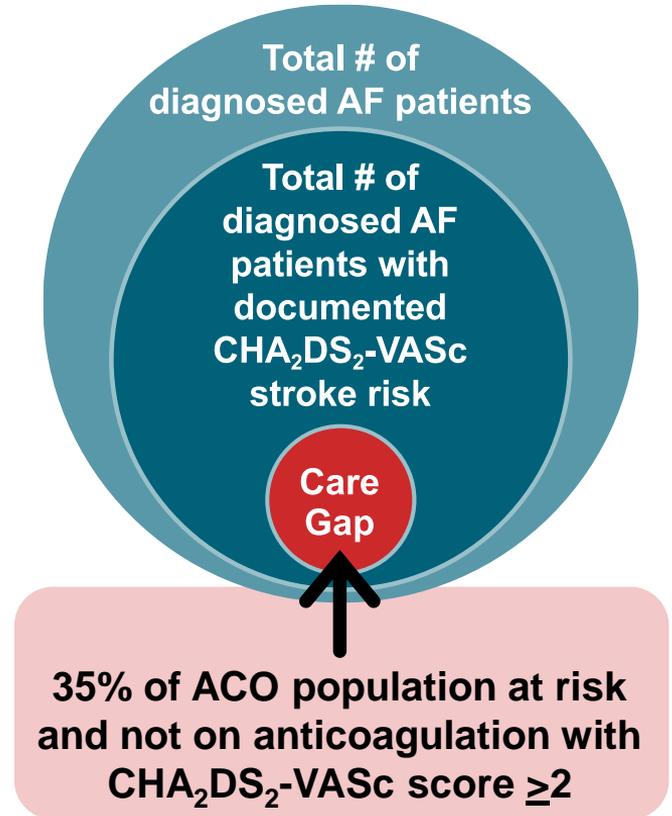
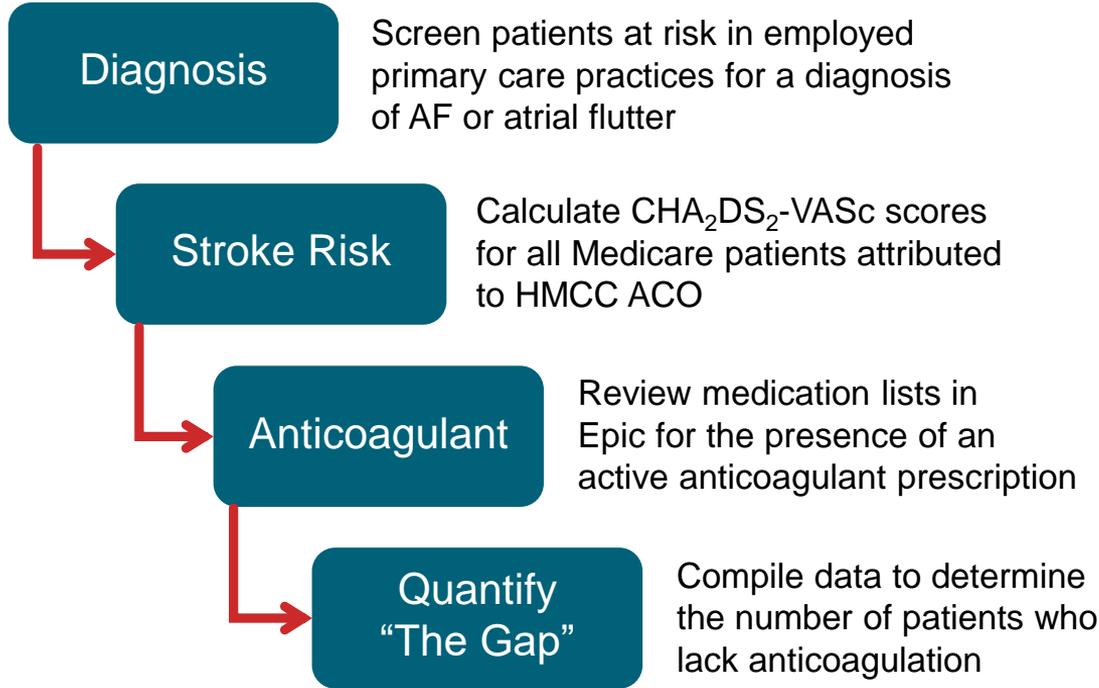
## CHA<sub>2</sub>DS<sub>2</sub>-VASc Risk Score Implementation in EHR

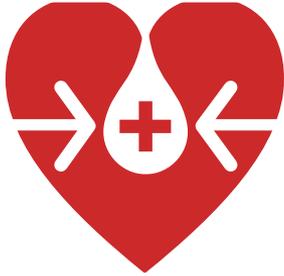
- Systemwide implementation of a risk stratification tool with score interpreted into annual stroke risk rate



## Systemwide Pharmacy Initiative

- Improve ordering of anticoagulants to reduce dosing errors





**7% increase**

in closing AF-related care gaps  
(by using guideline-based AF  
anticoagulation management) by  
primary care physicians (PCPs)



**6% increase**

in cardiology consults  
for patients at increased risk of  
stroke due to their AF

1

Build on Quick Wins from Quality Improvement (QI) Initiative after PCP education and CHA<sub>2</sub>DS<sub>2</sub>-VASc implementation in EHR

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2

Best practice alert (BPA) implementation at point of care for high CHA<sub>2</sub>DS<sub>2</sub>-VASc score\* and not on appropriate treatment

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3

Continually reassess gaps in care for HMCC ACO primary care practices to support sustainability at the PCP and practice level

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4

Consider implementation of the HAS-BLED score integrated in EHR at point of care for patient bleeding risk

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5

Collaboration between cardiology and PCPs for co-management

# HRS Commitment to Improve Patient Outcomes



**Heart  
Rhythm  
Society**<sup>SM</sup>

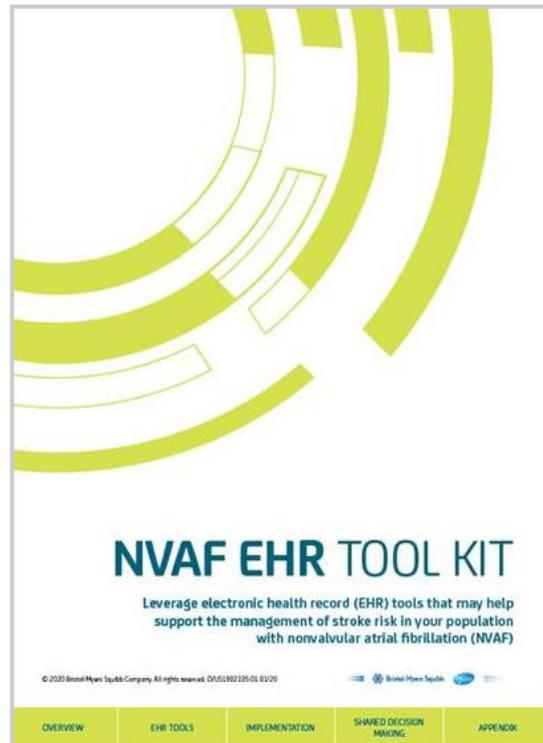
**TOGETHER WE ARE**  **HRS**<sup>SM</sup>

# Nonvalvular Atrial Fibrillation (NVAF) EHR Tool Kit

Reviewed by the **Heart Rhythm Society** and recognized as a **quality educational resource**

## **Pfizer/BMS NVAF EHR Tool Kit contains:**

- CHA<sub>2</sub>DS<sub>2</sub>-VASc Overview
- CHA<sub>2</sub>DS<sub>2</sub>-VASc Calculator
- CHA<sub>2</sub>DS<sub>2</sub>-VASc Alert
- Shared Decision-Making Documentation Log
- NVAF Patient EHR Registry
- Appendix: ICD-10 Codes Examples



**The Power of Health Care Systems  
to Deliver Guideline-Recommended  
Care for Atrial Fibrillation (AF)  
Stroke Risk Reduction**



**Questions?**



# Thank You!



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