Multidisciplinary Approach for Stroke Prevention in Patients with Atrial Fibrillation

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Risk for stroke in patients with AF

5-FOLD

Increase in ischemic stroke risk for AF patients.

2X

More likely for AF-related ischemic stroke to be fatal as non-AF stroke

67%

Decrease in AF patient stoke risk with oral anticoagulants

심방세동

❖고령에서 발생, 지속성 부정맥의 가장 흔한 형태

❖무증상 → 우연히 발견

- 건강검진
- 다른 질병에 대한 검사 또는 수술 전 심전도 검사

❖합병증 : 색전증 발생증가 (뇌졸중 ...), 심부전, 치매, 입원률 증가

❖진단과 치료

- 일차의료인에서부터 시작
- 치료가 단순하지 않고 고려해야 할 것이 많다.

Many aspects of AF management

- In general practitioner level

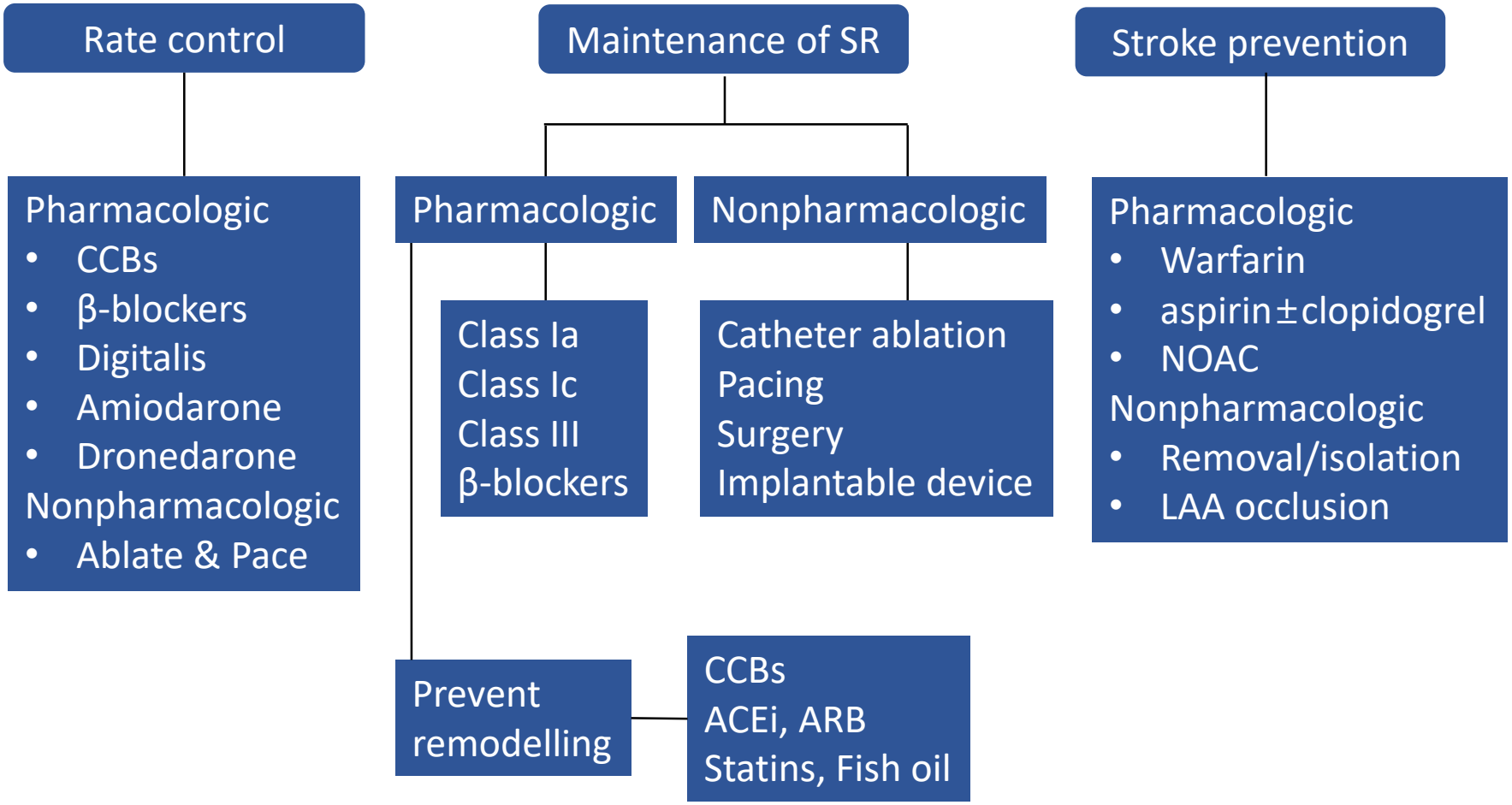
? Anticoagulation

? When to perform cardioversion

? When to switch from rate to rhythm control

? When to refer for catheter ablation

AF: Treatment Options



Adapted from Prystowsky E. Am J Cardiol 2000;85:3D-11D

Specific considerations to individualized AF care

- ❖ What are the modifiable risk factors leading to AF (e.g. OSA, IHD)
- ❖ Define goals of therapy
  - Prevent CVA – assess stroke risk
  - Prevent HF – rate control, assess diastolic dysfunction
  - Improve symptoms
  - Improve long term outcomes (e.g. mortality or hospitalization)
- ❖ Choice of treatment strategy
  - Rate control vs. Rhythm control
  - May require iteration to determine symptom burden
- ❖ Choice of specific treatment modality
  - **Anticoagulation choice – VKA vs NOAC vs anti-PLT vs LAA occlusion**
  - Medical Tx for rate control and/or for rhythm control – which drug?
  - Non-pharmacologic therapy – Pace or BiV pace & ablate, catheter ablation (which lesion set; which technology), hybrid or surgical ablation
  - Adjunctive therapies – Chronotropic support for medical management, “reverse-remodeling”

심방세동 예방 및 관리의 다학제 접근

❖취지는 좋으나 현실적으로 힘들다.

- 심방세동 환자는 매우 많다.
- 여러 과가 한 장소에 모여서 토의하기 힘들다.
- 환자들의 불만 → 한곳에서 몰아서 진료받고 싶다.
- 현재는 협진으로 해결하는 경우가 많은데 이것으로 충분하다는 견해가 많다.
- 돈이 많이 들 것 같다.

?? 만약 시도한다면 problem case가 해당 가능성 ↑

?? 다학제적 접근이 가능한 무언가가 있을 것이다.

의사들의 견해

❖ Primary physician

- Refer AF patient to tertiary center

❖ Cardiologist, especially electrophysiologist

- Primary prevention에 관심이 많다.
- Rate control or rhythm control ?
- AF 치료 전 중 후로 stroke이 발생한 경우 → 해결이 어려운 점이 많음.

❖ Neurologist

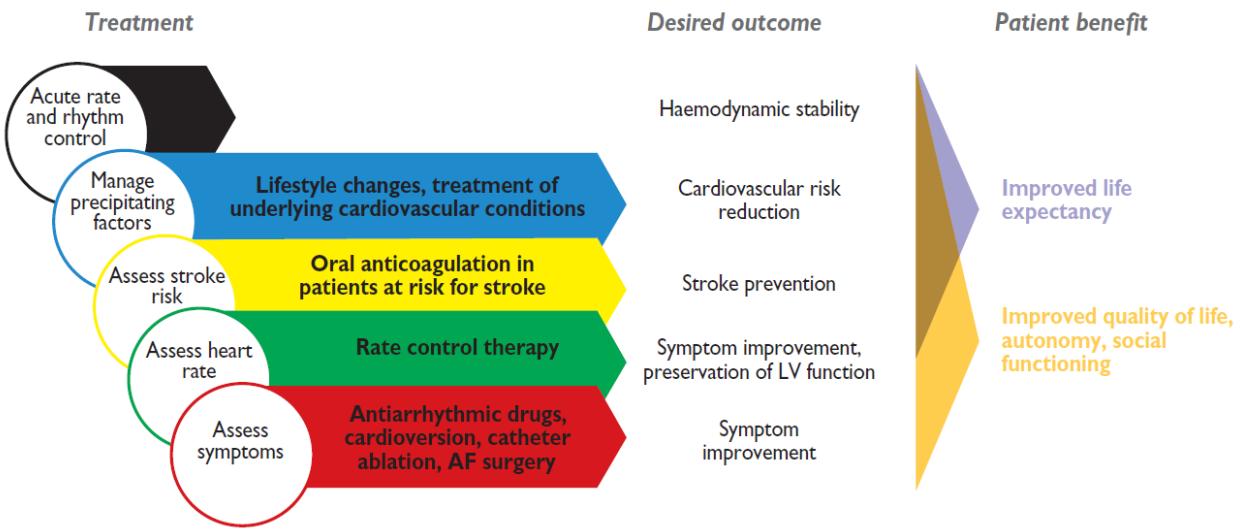
- Secondary prevention에 관심이 많다.
- TIA 또는 stroke patient에서 AF가 의심되는 환자 또는 cryptogenic stroke 에서 Holter에서 보이는 electrogram에 대해 궁금한 점이 많다.
- HF동반한 stroke d/t AF는 어떻게 management 할 것인가.

Definition of integrated care of AF

- **WHO definition**

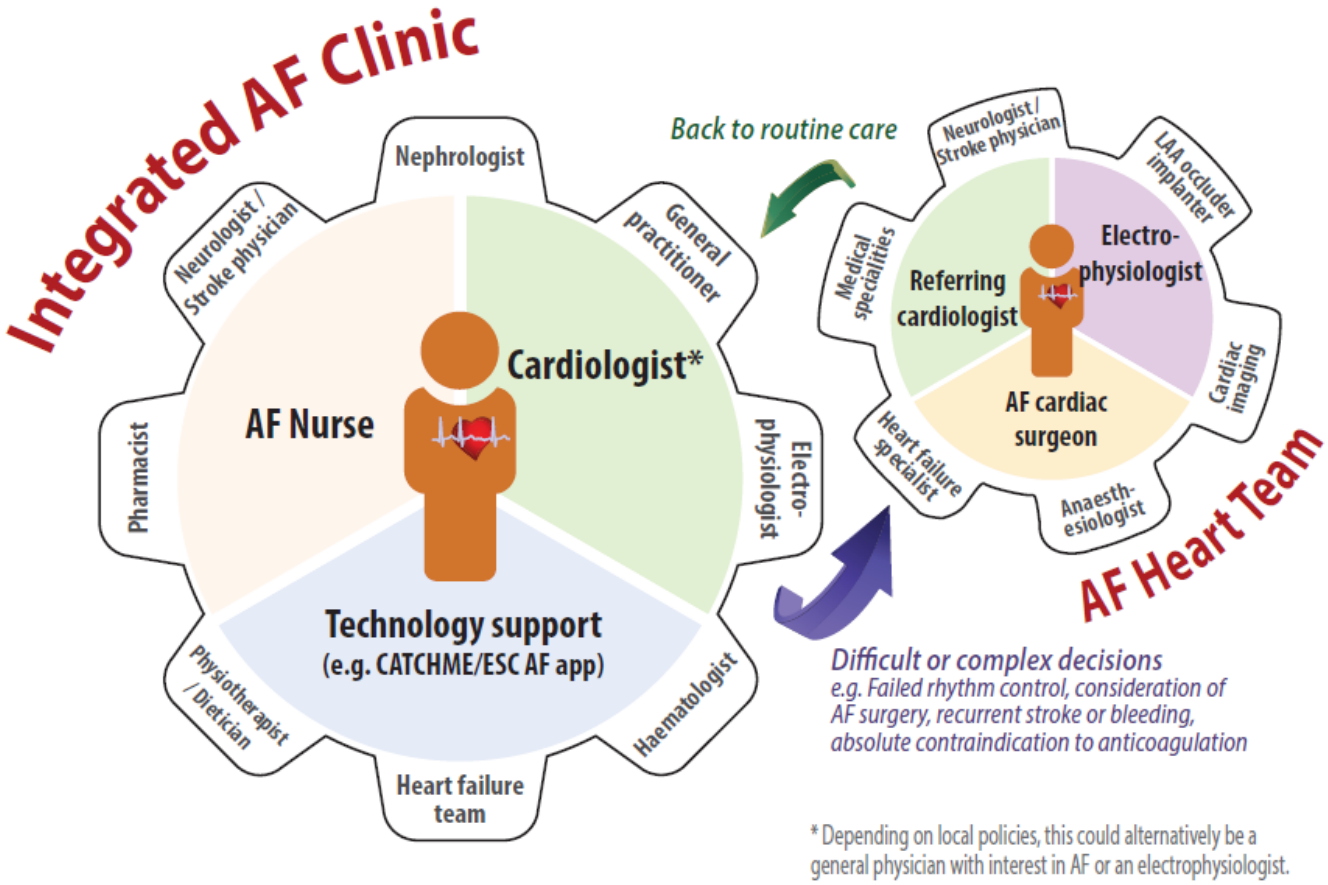
- ‘a coordinated patient-centered approach by interdisciplinary specialists to improve AF outcome’

Five domains of AF management



Adapted from the report on the 4th AFNET/EHRA consensus conference

Integrated AF care and AF Heart Team



AFNET/EHRA Consensus Conference 2017

ORIGINAL RESEARCH

An Integrated Management Approach to Atrial Fibrillation

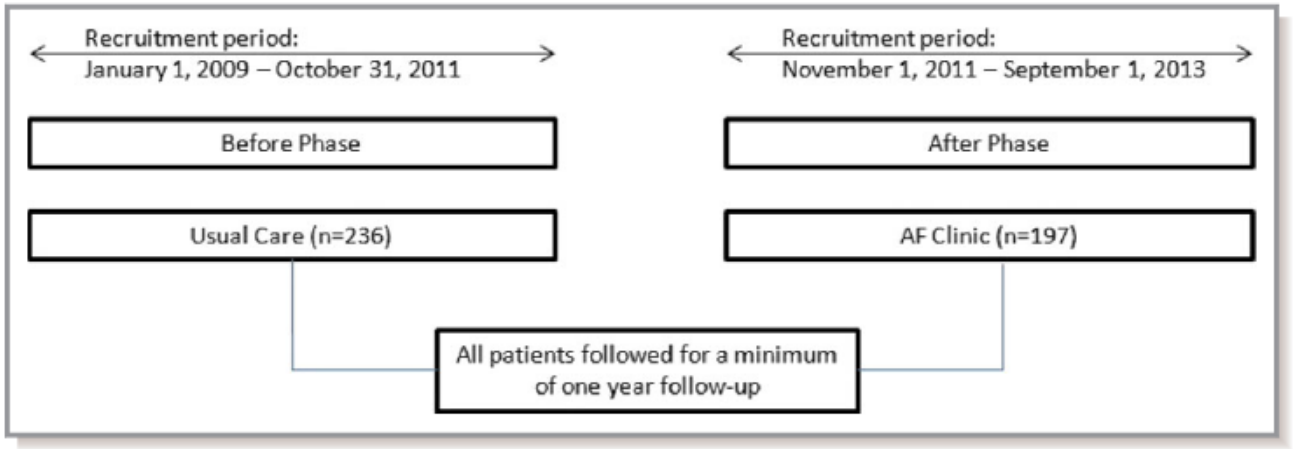
Lindsey Carter, MD; Martin Gardner, MD; Kirk Magee, MD; Ann Fearon, RN; Inna Morgulis, MSc; Steve Doucette, MSc; John L. Sapp, MD; Chris Gray, MD; Amir Abdelwahab, MBBCh, MSc, MD; Ratika Parkash, MD, MS

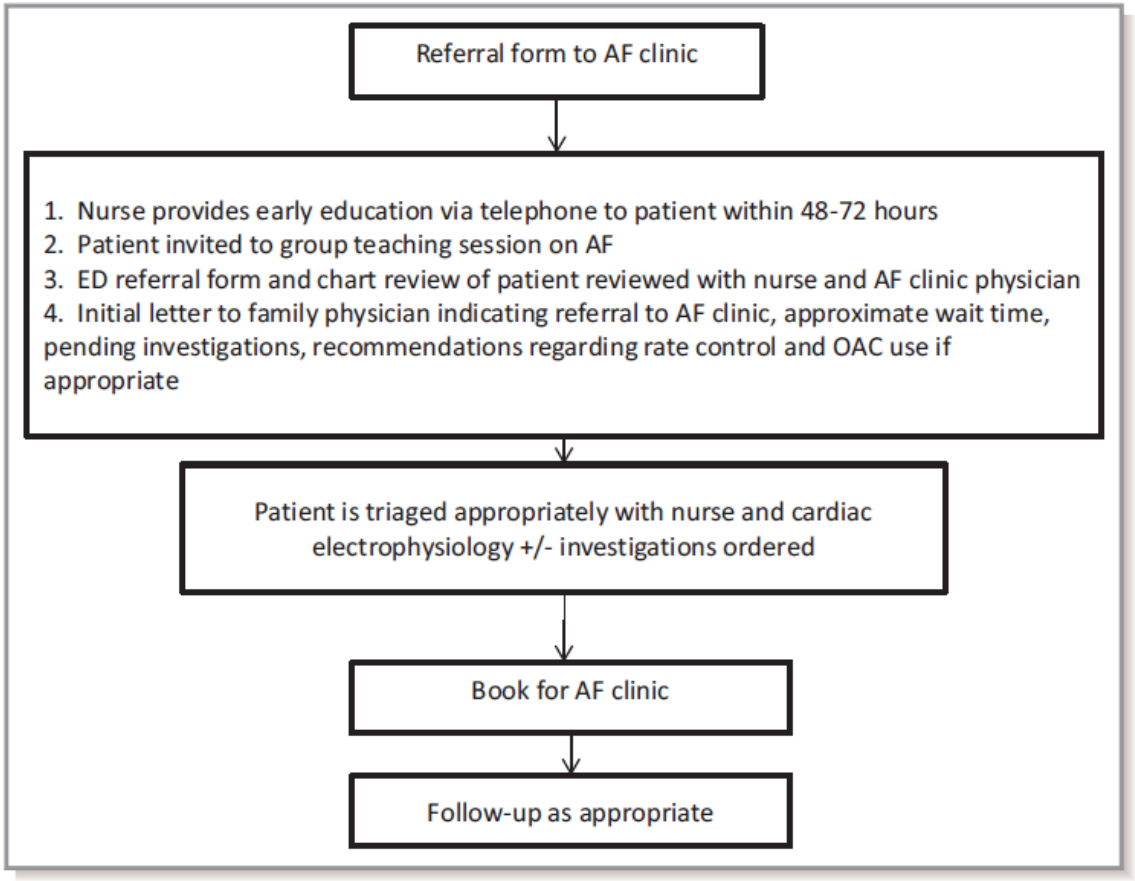
Background—Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia resulting in mortality and morbidity. Gaps in oral anticoagulation and education of patients regarding AF have been identified as areas that require improvement.

Methods and Results—A before-and-after study of 433 patients with newly diagnosed AF in the 3 emergency departments in Nova Scotia from January 1, 2011 until January 31, 2014 was performed. The "before" phase underwent the usual-care pathway for AF management; the "after" phase was enrolled in a nurse-run, physician-supervised AF clinic. The primary outcome was a composite of death, cardiovascular hospitalization, and AF-related emergency department visits. A propensity analysis was performed to account for differences in baseline characteristics. A total of 185 patients were enrolled into the usual-care group, and 228 patients were enrolled in the AF clinic group. The mean age was 64±15 years and 44% were women. In a propensity-matched analysis, the primary outcome occurred in 44 (26.2%) patients in the usual-care group and 29 (17.3%) patients in the AF clinic group (odds ratio 0.71; 95% CI [0.59, 1]; P=0.049) at 12 months. Prescription of oral anticoagulation was increased in the $CHADS_2$ ≥2 group (88.4% in the AF clinic versus 58.5% in the usual-care group, P<0.01).

Conclusions—Adoption of this integrated management approach for the burgeoning population of AF may provide an overall benefit to cardiovascular morbidity and mortality. **(*J Am Heart Assoc*. 2016;5:e002950 doi: 10.1161/JAHA.115.002950)**

Key Words: atrial fibrillation • quality and outcomes





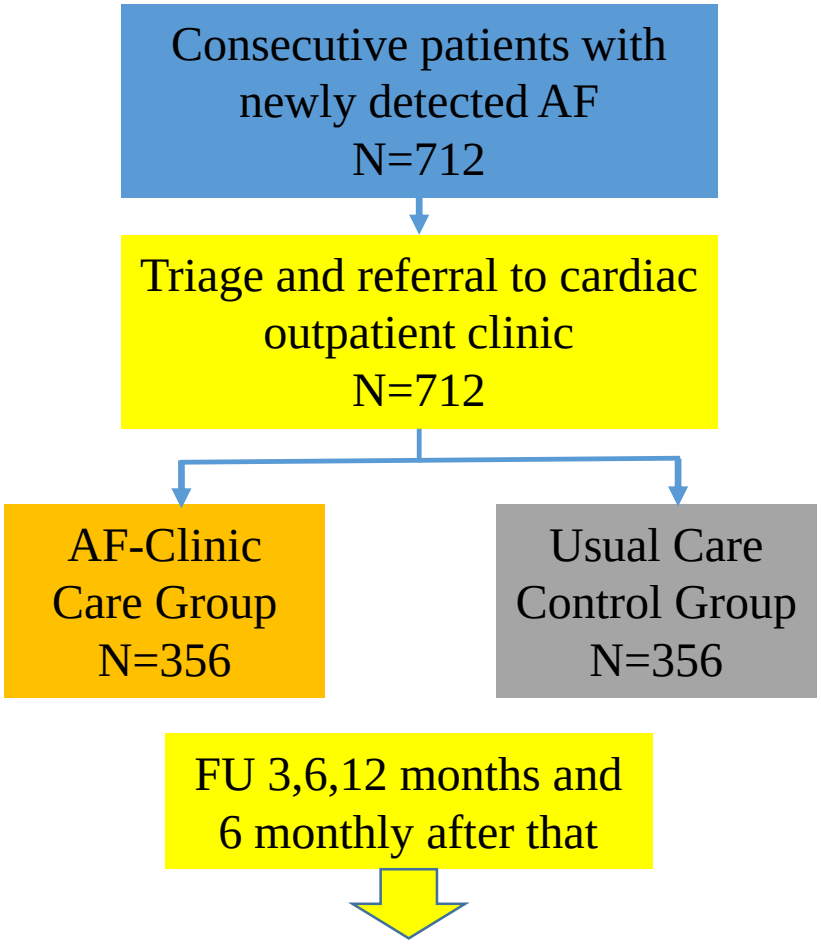
J Am Heart Assoc. 2016;5:e002950 doi: 10.1161/JAHA.115.002950

Outcomes at 12 months in unmatched groups

Outcome	AF Clinic (n=185)	Usual Care (n=228)	Odds Ratio (95% CI)	*P* Value
Death, CV hospitalization, AF-related ED visit	34 (18.4%)	65 (28.5%)	0.57 (0.35, 0.9)	0.017
Death from any cause	0 (0%)	4 (1.8%)	n/a	0.13*
CV hospitalization	11 (6%)	20 (8.8%)	0.66 (0.31, 1.41)	0.28
AF-related ED visit	25 (13.5%)	54 (23.7%)	0.5 (0.3, 0.85)	0.01
Stroke	4 (2.2%)	8 (3.5%)	0.61 (0.18, 2.05)	0.42
Major bleeding	0 (0%)	3 (1.3%)	n/a	0.26
Minor bleeding	4 (2.2%)	4 (1.8%)	1.24 (0.31, 5.02)	0.77

Reduction in important CV outcomes
Improvement in AF guideline adherence

Nurse-led care vs. usual care



AF confirmed on ECG
age≥ 18 years

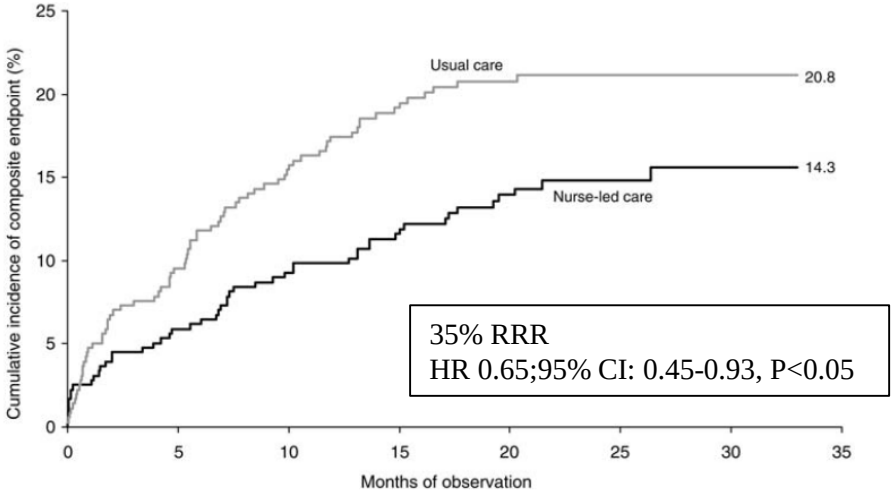
Integrated AF-Clinic:
- Patient education
- Multidisciplinary team
- Decision support software
- Coordination of care

Primary endpoint:
CV hospitalization or mortality

Secondary endpoint:
All-cause mortality

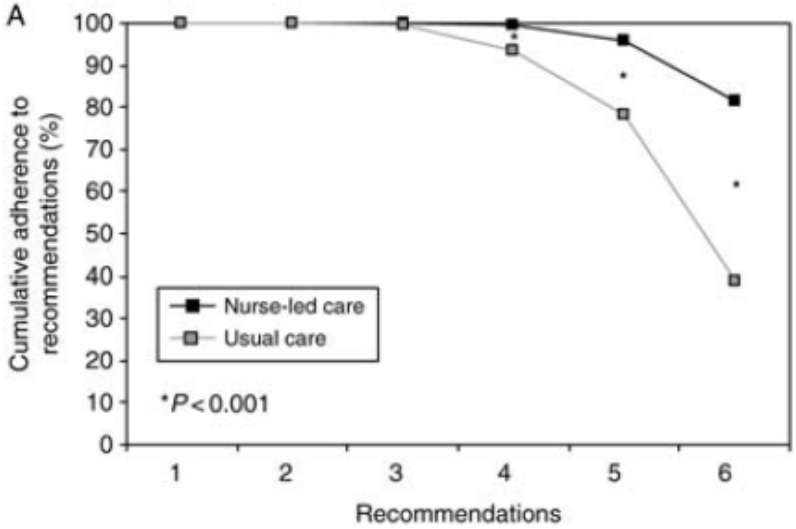
Hendriks JM et al. Eur Heart J 2012

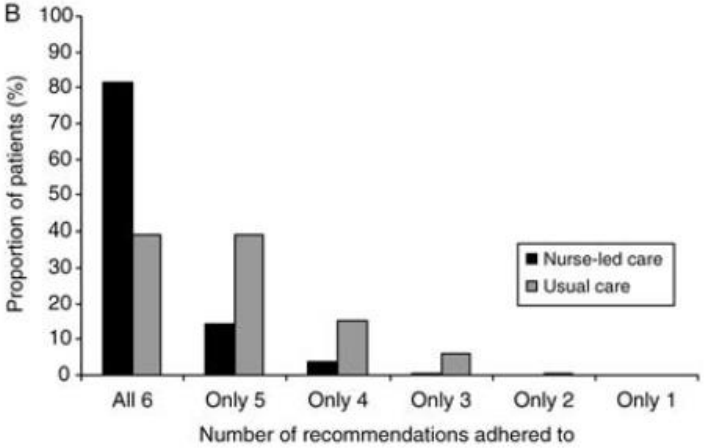
Cumulative incidence CV hospitalization or death



No. at risk

NLC	356	355	323	285	229	126	55	4
UC	356	321	300	265	206	107	37	3





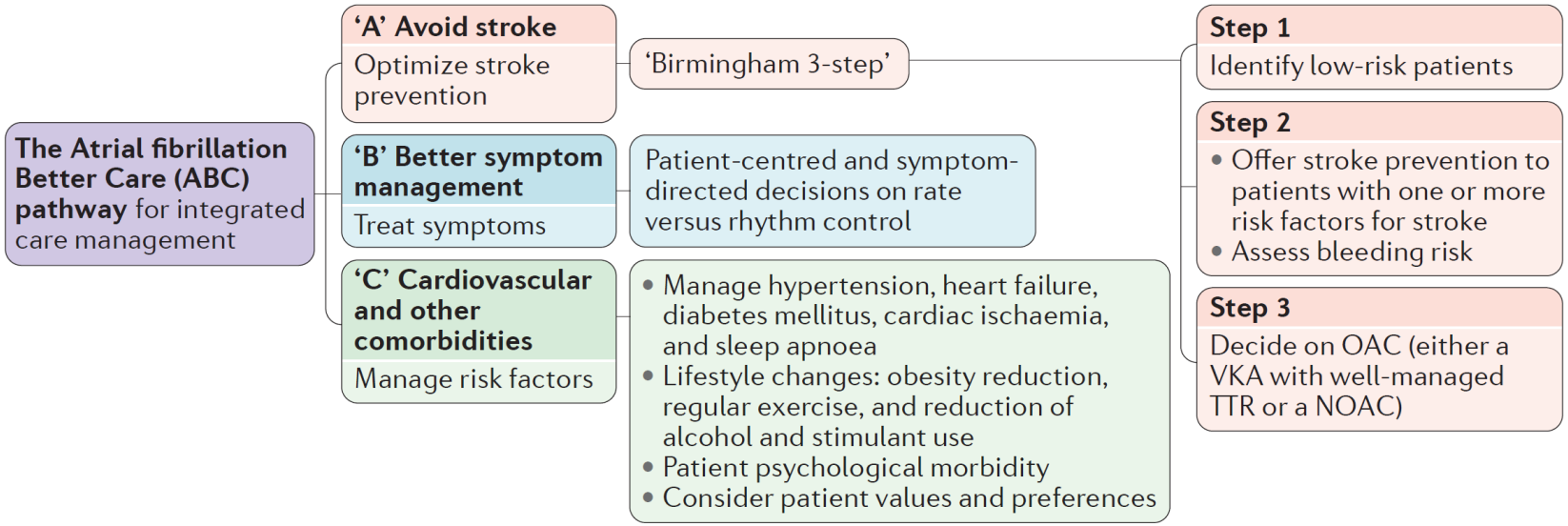
Hendriks JM et al. Eur Heart J 2012

Cost-effective

Unit price (2011 prices)		Nurse-led care				Usual care				Difference in costs		
		Volume (SD)		Cost (SD)		Volume (SD)		Cost (SD)		Difference in costs	Bootstrapped 2.5th–97.5th CI	
Total health care exclusive of inpatient care				€1473.47	(1126.37)			€1433.79	(1030.96)	€39.68	−179.49	324.78
Inpatient care												
Number of hospitalizations	–	0.11	(0.37)	€828.38	(4873.10)	0.21	(0.54)	€1603.44	(5541.55)	**−€775.06**	**−1942.92**	**−80.75**
Total health care inclsive of inpatient care				€2301.85	(5506.10)			€3037.22	(5987.07)	−€735.38	−1852.67	781.14

Hendriks J. Europace 2013:15;1128-35

Atrial fibrillation Better Care (ABC) pathway for integrated care management



GYH Lip, Nat Rev Cardiol, 14 (11) (2017), pp. 627-628

Fundamentals of integrated care in AF

Multidisciplinary teams including generalists

Multidisciplinary care teams:

- Patients, cares, community, and practitioners
- Generalist and specialist clinicians (GPs, cardiologists, neurologists, hematologist, surgeons)
- Non-medical & allied health professionals (e.g. nurses, pharmacists, physiotherapists, dieticians)

Patient-centered care

Patient-centered care:

- Patients and care-giver involvement
- Patient information and education
- Self-management & engagement

Integrated management across the spectrum of care

eHealth to support the management of AF

Support for patients & health professionals:

- Information
- Communication & documentation tools
- Clinical algorithms & decision support
- Point-of-care monitoring and testing
- Diagnostic tools & treatment techniques
- Telehealth, mobile health

Technologies available:

- Web-based interfaces
- Smart-phones, communication devices, wireless technology
- Computerized tools
- Digital resources and devices

Comprehensive treatment approach to AF

Comprehensive treatment:

- AF detection
- Acute vs long-term arrhythmia management
- Risk assessment and risk factor modification
- Stroke prevention via OAC according to stroke risk
- Prevention of other sequelae
- Lifestyle changes

Interventions comprising:

- EB management
- Targeted procedures &/or pharmacotherapy
- Monitoring of outcomes
- Patient follow-up & re-assessment

Accessible care:

- Structural support for lifestyle, pharmacotherapeutic, non-surgical/non-invasive procedure and surgical interventions
- Primary, secondary, tertiary care
- Regional, rural and remote services

Heart, Lung and Circulation 2018;27,1209-66

Fundamentals of integrated care in AF patients

Integrated AF management			
Patient involvement	Multidisciplinary teams	Technology tools	Access to all treatment options for AF
• Central role in care process • Patient education • Encouragement and empowerment for self-management • Advice and education on lifestyle and risk factor management • Shared decision making • ***Informed, involved, empowered patient***	• Physicians (general physicians, cardiology and stroke AF specialists, surgeons) and allied health professionals work in a collaborative practice model • Efficient mix of communication skills, education, and experience • ***Working together in a multidisciplinary chronic AF care team***	• Information on AF • Clinical decision support • Checklist and communication tools • Used by healthcare professionals and patients • Monitoring of therapy adherence and effectiveness • ***Navigation system to support decision making in treatment team***	• Structured support for lifestyle changes • Anticoagulation • Rate control • Antiarrhythmic drugs • Catheter and surgical interventions (ablation, LAA occluder, AF surgery, etc.) • ***Complex management decisions underpinned by an AF Heart Team***

European Heart Journal (2016) 37, 2893–2962

Technology tools to ensure the success of integrated care

CATCH ME

The AF Manager and My AF apps were developed by the CATCH ME consortium of which the ESC is a partner - Characterising AFib by Translating its Causes into Health Modifiers in the Elderly.

CATCH ME brings together the expertise of leading academic institutes and professional societies to improve the care of patients with Atrial Fibrillation.

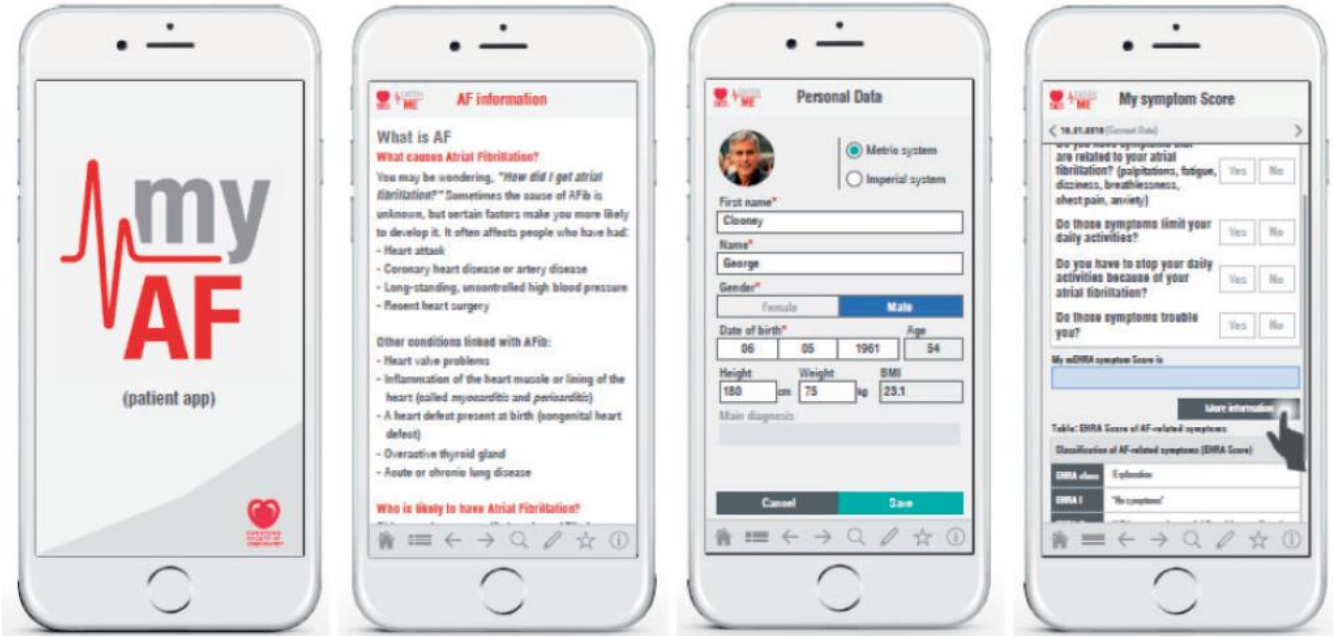
CATCH ME is funded by the European Union's Horizon 2020 research and innovation programme under grant agreement No 633196.

Find out more

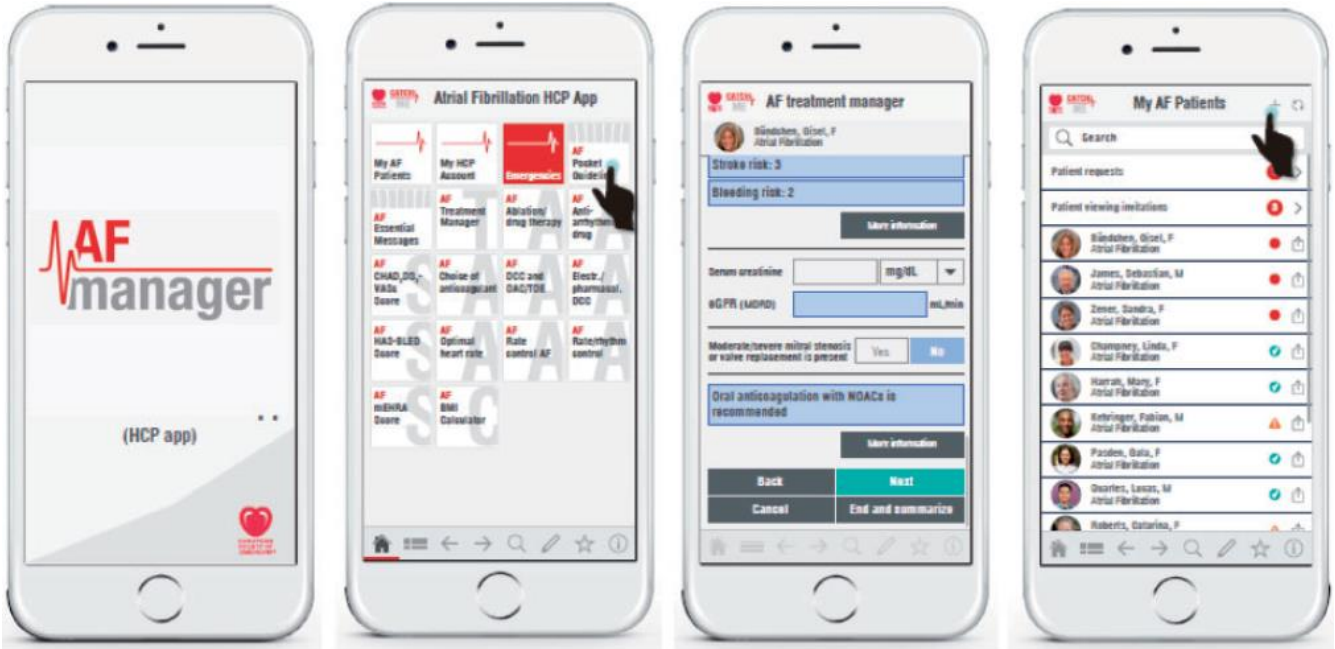
*The AF Manager and My AF apps are not yet available in all countries outside of European but will be coming soon. The apps are available in countries listed below.

Albania
Austria
Belarus
Belgium
Bulgaria
Croatia
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
Germany
Greece
Hungary
Iceland
Ireland
Italy
Latvia
Lithuania
Luxembourg
Macedonia, The former Yugoslav Republic of
Malta
Maldova, Republic of
Netherlands
Norway
Poland
Portugal

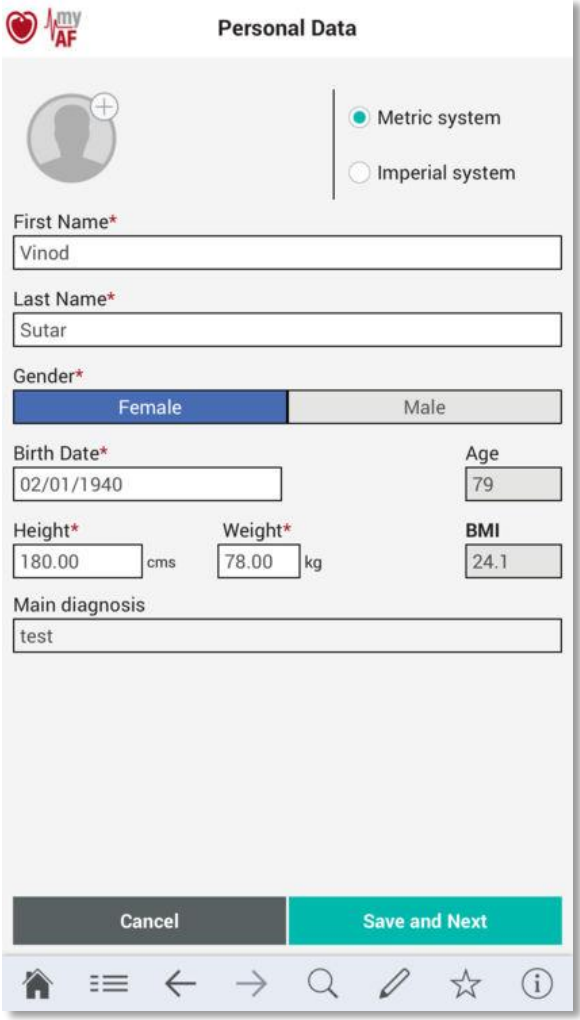
Patient app



Healthcare professional app



AF apps to revolutionize decision making



My AF Patient App

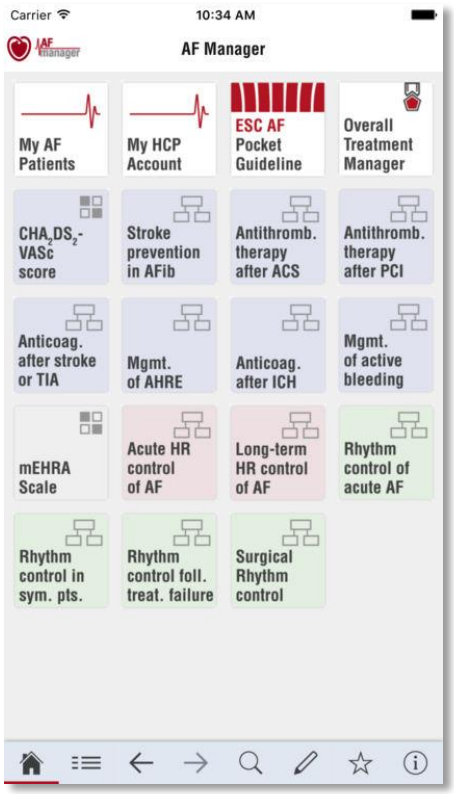
- Patient **education** designed for and by patients
- Possibility to record **vital parameters** in 'My Health'
- Patient can **transfer data** to health care professional app
- Empowerment and encouragement to **self-management**

www.escardio.org/AF-apps

AF apps to revolutionize decision making

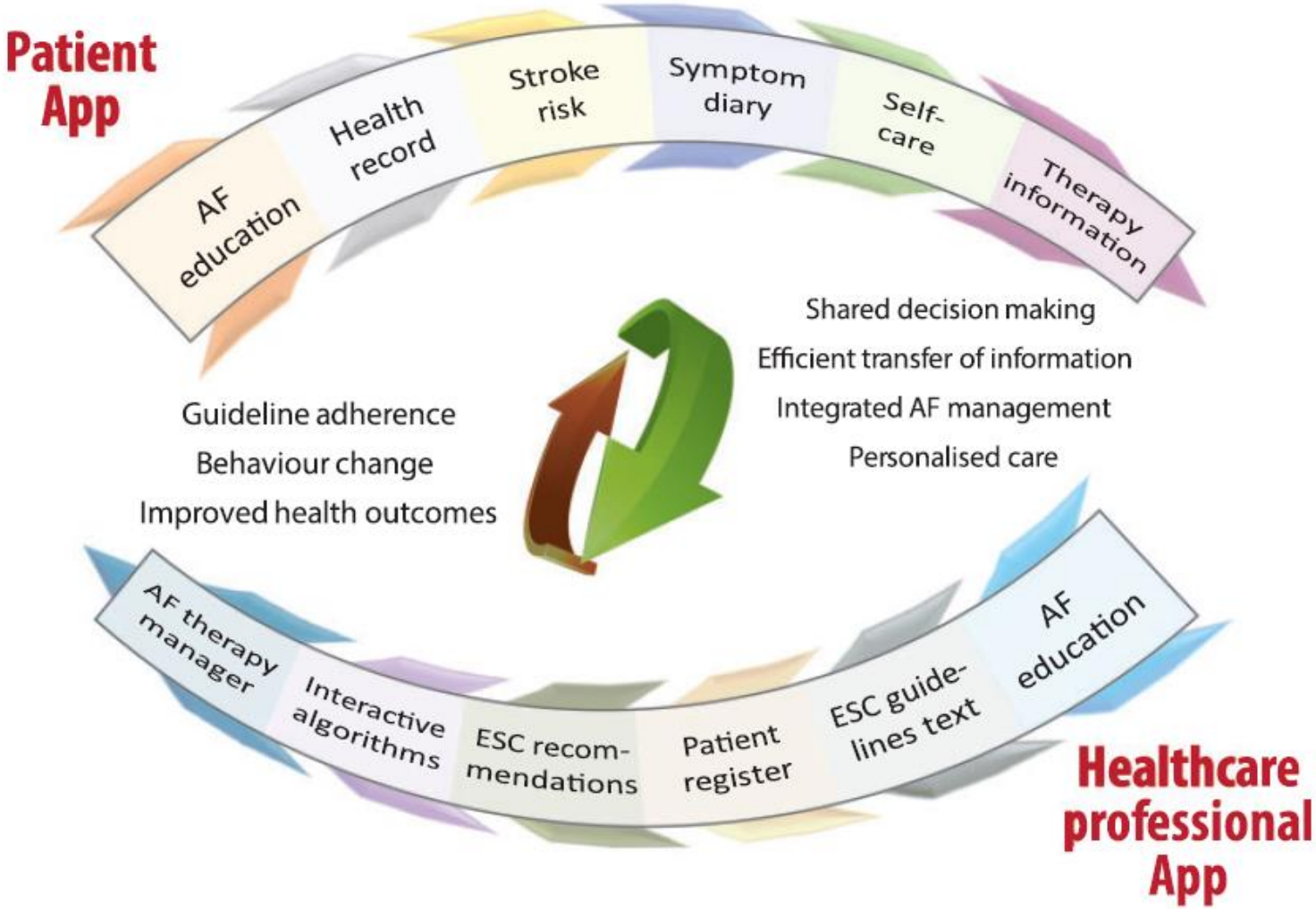
AF manager for health care professionals

- Support integrated AF care on ESC guidelines
- Digital pocket guidelines on mobile device
- Risk score calculations
- Connect to patient data



www.escardio.org/AF-apps

Components and objectives of the app development program



Recommendations for an integrated approach to care

Recommendations	Class	Level
An integrated approach with structured organization of care and follow-up should be considered in all patients with AF, aiming to improve guidelines adherence and to reduce hospitalizations and mortality	I	B
Pacing patients in a central role in decision-making should be considered in order to tailor management to patient preferences and improve adherence to long-term therapy.	IIa	C

2016 ESC Guidelines for AF

Diagnostic workup of AF patents

Recommendations for diagnostic workup of AF patients

Recommendations	Class	Level
ECG documentation is required to establish the diagnosis of AF.	I	B
A full cardiovascular evaluation, including an accurate history, careful clinical examination, and assessment of concomitant conditions, is recommended in all AF patients.	I	C
TTE is recommended in all AF patients to guide management.	I	C
Long-term ECG monitoring should be considered in selected patients to assess the adequacy of rate control in symptomatic patients and to relate symptoms with AF episodes.	IIa	C

2016 ESC Guidelines for AF

Additional investigations in selected patients with AF

- Ambulatory ECG monitoring
  - Adequacy of rate control, relate symptoms with AF recurrences, and detect focal induction of bouts of PAF.
- TEE
  - useful to further assess VHD
  - exclude intracardiac thrombi (LAA)
  - facilitate early cardioversion or catheter ablation.
- CAG or stress testing
  - symptoms or signs of myocardial ischemia
- CT or MRI
  - Signs of cerebral ischemia or stroke
  - support decisions regarding acute management and long-term anticoagulation.
- Delayed-enhancement MRI, ICE
  - May help to guide treatment decisions in AF, but require external validation in multicenter studies.

Goal-based follow-up

Category	Intervention	Follow-up aspects	Performance indicator (examples)
Prognostic	Comorbidity control (relevant examples given)	Obesity Arterial hypertension Heart failure Coronary artery disease Diabetes Valvular heart disease	Weight loss Blood pressure control HF therapy and hospitalizations Statin and antiplatelet therapy; revascularization Glycemic control Valve repair or replacement
Prognostic	Anticoagulation	Indication (risk profile; timing, e.g. post-cardioversion). Adherence (NOAC or VKA) and INR (if VKA). NOAC dosing (co-medications; age; Wt; renal function).	Stroke Bleeding Mortality
Mainly symptomatic Partly prognostic	Rate control	Symptoms Average resting HR <110 bpm	Modified EHRA score Heart failure status LV function Exercise capacity Hospitalization Therapy complications
Symptomatic at present	Rhythm control	Symptoms vs. side effects Exclusion of pro-arrhythmia (PR; QRS; QTc interval)	
Relevant for implementation of therapy and adherence	Patient education and self-care capabilities	Knowledge (about disease; about treatment; about management goals) Capabilities (what to do if…)	Adherence to therapy Directed evaluation, preferably based on systematic checklists
Relevant for chronic care management	Caregiver involvement	Who? (spouse; GP; home nurse; pharmacist) Clearly spelling out participation roles Knowledge and capabilities	Directed evaluation of task performance (e.g. via patient card) Dispensed medication Log of follow-up visits

Conclusion

- 심방세동에 대한 통합적인 치료를 위해서는 환자가 병에 대한 기본적인 지식을 가지고 적극적으로 치료의 중심에 서야 한다.

- 이 과정에서 의사들에 의한 전문적인 지식이, 환자와 의사 사이의 의사소통과 교육을 통하여 환자에게 원활하게 전달되어야 한다.

- 환자를 처음 접하게 되는 1차 진료의의 진단부터, 치료 그리고 체계적인 추적 관찰에 이르기까지 단계적이고 통합적인 심방세동 관리는 질병의 치료에 있어서 부작용을 최소화하고, 병에 대한 환자들의 인지도를 높여 치료 성과를 향상시킬 것으로 생각된다.