



**Systematic Review of Management Options
for Atrial Fibrillation: Preliminary Findings**

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Systematic Review Scope

- To compare clinical effectiveness of multiple AF management strategies:
 - Anti-arrhythmic drugs (AADs)
 - Focus on 5 agents in ACC-AHA guidelines
 - Emerging evidence on dronedarone
 - As compared to rate control strategies
 - Catheter ablation
 - PVI w/ or w/o other ablation sets
 - As compared to rhythm and/or rate control
 - Surgical ablation
 - Mini-Maze or other thorascopic approach
 - As compared to catheter ablation

Systematic Review Scope (cont'd)

- To compare clinical effectiveness of multiple stroke prevention strategies:
 - Warfarin
 - Aspirin
 - Emerging evidence on:
 - Dabigatran
 - WATCHMAN[®] device
- To appraise evidence for critical subpopulations:
 - Type of AF, stroke risk, age/sex, etc.

Review Logistics

- Initial platform: AHRQ review of RFA ablation (2008)
- Warfarin/ aspirin: from published patient-level meta-analysis
- New abstraction of data for:
 - AADs
 - Dabigatran
 - WATCHMAN
 - mini-Maze

Major Exclusions

- Temporary AF, congenital disorders, hypertrophic heart disease
- Non-PVI catheter ablation
- Cox-Maze surgery (III and IV)
- Sample size:
 - Effectiveness: <25 patients per arm
 - Harms: n<100 in retrospective cohort studies
- <6 months of follow-up

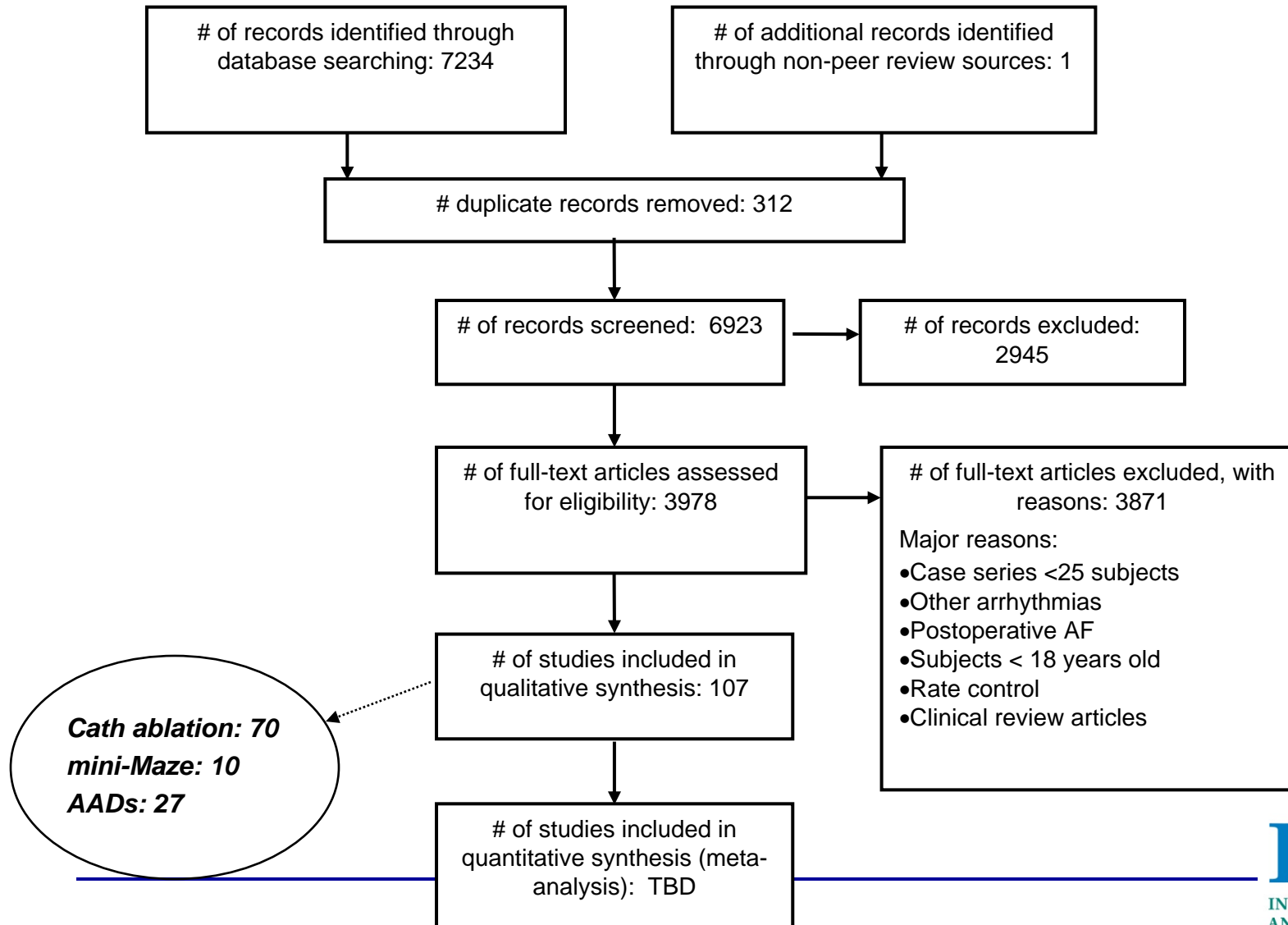
Outcomes Assessed

- Freedom from AF/Maintenance of NSR:
 - Short- (6-12 mo) and long-term (>12 mo)
 - Based on Holter/event recordings
- AF “burden”:
 - Time in/out of AF
 - AF episode counts
- Stroke

Outcomes Assessed (cont'd)

- Resource utilization:
 - Repeat catheter ablations, rehospitalizations
- Health-related QoL
- Harms:
 - Mortality:
 - Peri-operative (catheter ablation, mini-Maze)
 - All-cause, cardiovascular (AADs, rate control)
 - Procedure-related complications
 - Drug-related adverse events

Literature Search Results



Evidence Quality*

Intervention	Type of Study		
	RCT	Comparative Cohort	Case Series
Catheter Ablation	18	6	46
<i>Good</i>	2	0	--
<i>Fair</i>	10	3	--
<i>Poor</i>	6	3	--
mini-Maze	2	1	7
<i>Good</i>	0	0	--
<i>Fair</i>	1	1	--
<i>Poor</i>	1	0	--
AADs	22	3	2
<i>Good</i>	14	0	--
<i>Fair</i>	1	3	--
<i>Poor</i>	7	0	--

*Assessed using USPSTF criteria for internal validity of RCTs and cohort studies

Findings: Considerations

- Meta-analysis not yet conducted:
 - Preliminary data presented as ranges and unweighted means
- RCTs/comparative cohorts only for effectiveness measures
- Case series assessed for key long-term outcomes
- Variability in outcome measurement:
 - Attempts made to standardize results or focus on studies that use similar methods

Findings: Results Tables (PDF document)

Findings: Considerations (cont'd)

- Limited data on 1st vs. 2nd line use of catheter ablation:
 - AF measurement method unclear in single 1st line RCT
- Single RCT of mini-Maze also subject to measurement concerns:
 - EKG vs. Holter in some patients?
- Variability in measures and timepoints for rehospitalization data
- Comparative data on AF burden limited

Recent Unpublished Reports

- Recently-presented data on catheter ablation (e.g., STOP-AF, CABANA pilot) suggest effectiveness in line with review findings
- Repeat ablation rates also in range of earlier studies
- High rates of recurrent AF (symptomatic + asymptomatic) in CABANA pilot:
 - 55% vs. 69% for ablation and rhythm/rate control respectively

Key Issues

- Criteria for exclusion of “poor-quality” studies
- Role(s) for case series
- Appropriate “cutoff” for paroxysmal vs. mixed AF
- Characterization of AF burden
- Measurement standard for AF recurrence
- Are candidate populations for catheter vs. mini-Maze ablation comparable?
- Other data, studies of interest

Mid-Cycle Call: Guidance from ERG on Key Points

- Catheter ablation
 - Variability in “blanking period” reporting
 - *stratify studies by whether (a) duration of blanking period provided and (b) outcomes during blanking period were tracked and reported*
 - Differences in reporting conventions by center
 - *flag studies that do and do not conform to Heart Rhythm Society reporting standards*
 - Evaluating treatment success
 - *if feasible, stratify success rates by single vs. multiple ablation attempts*
 - “Best operator” results in narrow populations
 - *examine available data in specific populations of interest:*
 - *Elderly (age >70 years)*
 - *CHF*
 - *Long-standing (>1 year) persistent AF*

Mid-Cycle Call: Guidance from ERG on Key Points

- Surgical ablation
 - Many series focus on patients w/longstanding AF who have failed multiple treatment options
 - *examine series data to identify patient populations undergoing surgery earlier in disease progression*
 - Term “mini-Maze” often used to describe surgical PVI
 - *stratify by surgical approach (e.g., PVI alone, left-sided ablation, true minimally-invasive Maze)*
- New evidence
 - *Summarize CABANA pilot study (catheter ablation) even if unpublished, as it represents a broader and more generalizable population*
 - *Consider TRENDS study (AF burden)*