Appendix A. Exact Search Strings

PubMed® search strategy (December 9, 2011)

KQ 1—What are the comparative safety and effectiveness of pharmacological agents used for ventricular rate control in patients with atrial fibrillation? Do the comparative safety and effectiveness of these therapies differ among specific patient subgroups of interest?

#1	"Atrial Fibrillation"[Mesh] OR "atrial fibrillation"[tiab] OR (atrial[tiab] AND fibrillation[tiab]) OR afib[tiab] OR "atrial flutter"[MeSH Terms] OR "atrial flutter"[tiab]
#2	"Anti-Arrhythmia Agents"[Mesh] OR "Anti-Arrhythmia Agents"[Pharmacological Action] OR ((antiarrhythmic[tiab] OR antiarrhythmia[tiab]) AND (agent[tiab] OR agents[tiab] OR drug[tiab] OR drugs[tiab])) OR "metoprolol"[MeSH Terms] OR "metoprolol"[tiab] OR "atenolol"[MeSH Terms] OR "atenolol"[tiab] OR "carvedilol"[Supplementary Concept] OR "carvedilol"[tiab] OR "bisoprolol"[MeSH Terms] OR "bisoprolol"[tiab] OR "timolol"[MeSH Terms] OR "timolol"[tiab] OR "esmolol"[Supplementary Concept] OR "esmolol"[tiab] OR "nebivolol"[Supplementary Concept] OR "nebivolol"[tiab] OR verapamil[tiab] OR "verapamil"[MeSH Terms] OR "diltiazem"[MeSH Terms] OR "diltiazem"[tiab] OR "digoxin"[MeSH Terms] OR "digoxin"[tiab] OR "Adrenergic beta-Antagonists"[Mesh] OR "Adrenergic beta-Antagonists"[Pharmacological Action] OR beta-blocker[tiab] OR beta-blockers[tiab] OR "Calcium Channel Blockers"[Mesh] OR "Calcium Channel Blockers" [Pharmacological Action] OR "Acebutolol"[Mesh] OR acebutolol[tiab] OR "Nadolol"[Mesh] OR Nadolol[tiab] OR "Amiodarone"[Mesh] OR Amiodarone[tiab] OR "dronedarone" [Supplementary Concept] OR dronedarone[tiab]
#3	"evaluation studies"[Publication Type] OR "evaluation studies as topic"[MeSH Terms] OR "evaluation study"[tw] OR evaluation studies[tw] OR "intervention studies"[MeSH Terms] OR "intervention study"[tw] OR "intervention studies"[tw] OR "case-control studies"[MeSH Terms] OR "case-control"[tw] OR "cohort studies"[MeSH Terms] OR cohort[tw] OR "longitudinal studies"[MeSH Terms] OR "longitudinal"[tw] OR longitudinally[tw] OR "prospective"[tw] OR prospectively[tw] OR "retrospective studies"[MeSH Terms] OR "retrospective"[tw] OR "follow up"[tw] OR "comparative study"[Publication Type] OR "comparative study"[tw] OR systematic[sb] OR "meta-analysis"[Publication Type] OR "meta-analysis as topic"[MeSH Terms] OR "meta-analysis"[tw] OR "meta-analyses"[tw] OR randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR randomised[tiab] OR randomization[tiab] OR randomisation[tiab] OR placebo[tiab] OR "drug therapy"[Subheading] OR randomly[tiab] OR trial[tiab] OR groups[tiab] OR Clinical trial[pt] OR "clinical trial"[tw] OR "clinical trials"[tw] NOT (Editorial[ptyp] OR Letter[ptyp] OR Case Reports[ptyp] OR Comment[ptyp])
#4	#1 AND #2 AND #3
#5	#4 NOT (animals[mh] NOT humans[mh])
#6	#5 limits: English, Publication Date from 2000-present

KQ 2—What are the comparative safety and effectiveness of a strict rate-control strategy versus a more lenient rate-control strategy in patients with atrial fibrillation? Do the comparative safety and effectiveness of these therapies differ among specific patient subgroups of interest?

#1	"Atrial Fibrillation"[Mesh] OR "atrial fibrillation"[tiab] OR (atrial[tiab] AND fibrillation[tiab]) OR afib[tiab] OR "atrial flutter"[MeSH Terms] OR "atrial flutter"[tiab]
#2	((rate[tiab] OR "heart rate"[MeSH Terms]) AND control[tiab]) AND (strategy[tiab] OR lenient[tiab] OR strict[tiab])
#3	"evaluation studies"[Publication Type] OR "evaluation studies as topic"[MeSH Terms] OR "evaluation study"[tw] OR evaluation studies[tw] OR "intervention studies"[MeSH Terms] OR "intervention study"[tw] OR "intervention studies"[tw] OR "case-control studies"[MeSH Terms] OR "case-control"[tw] OR "cohort studies"[MeSH Terms] OR cohort[tw] OR "longitudinal studies"[MeSH Terms] OR "longitudinal"[tw] OR longitudinally[tw] OR "prospective"[tw] OR prospectively[tw] OR "retrospective studies"[MeSH Terms] OR "retrospective"[tw] OR "follow up"[tw] OR "comparative study"[Publication Type] OR "comparative study"[tw] OR systematic[sb] OR "meta-analysis"[Publication Type] OR "meta-analysis as topic"[MeSH Terms] OR "meta-analysis"[tw] OR "meta-analyses"[tw] OR randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR randomised[tiab] OR randomization[tiab] OR randomisation[tiab] OR placebo[tiab] OR "drug therapy"[Subheading] OR randomly[tiab] OR trial[tiab] OR groups[tiab] OR Clinical trial[pt] OR "clinical trial"[tw] OR "clinical trials"[tw] NOT (Editorial[ptyp] OR Letter[ptyp] OR Case Reports[ptyp] OR Comment[ptyp])
#4	#1 AND #2 AND #3
#5	#4 NOT (animals[mh] NOT humans[mh])
#6	#5 limits: English, Publication Date from 2000-present

KQ 3—What are the comparative safety and effectiveness of newer procedural and other nonpharmacological rate-control therapies compared with pharmacological agents in patients with atrial fibrillation who have failed initial pharmacotherapy? Do the comparative safety and effectiveness of these therapies differ among specific patient subgroups of interest?

#1	"Atrial Fibrillation"[Mesh] OR "atrial fibrillation"[tiab] OR (atrial[tiab] AND fibrillation[tiab]) OR afib[tiab] OR "atrial flutter"[MeSH Terms] OR "atrial flutter"[tiab]
#2	nonpharmacological[tiab] OR non-pharmacological[tiab] OR "Pacemaker, Artificial"[Mesh] OR pacemaker[tiab] OR (cardiac[tiab] AND (pace[tiab] OR pacing[tiab]) AND artificial[tiab]) OR "Cardiac Pacing, Artificial"[Mesh] OR "Atrioventricular Node"[Mesh] OR AVN[tiab] OR ((atrioventricular[tiab] OR atrio-ventricular[tiab]) AND (nodal[tiab] OR node[tiab])) OR "catheter ablation"[MeSH Terms] OR "catheter ablation"[tiab]
#3	rate[tiab] OR heart rate[Mesh]
#4	"evaluation studies"[Publication Type] OR "evaluation studies as topic"[MeSH Terms] OR "evaluation study"[tw] OR evaluation studies[tw] OR "intervention studies"[MeSH Terms] OR "intervention study"[tw] OR "intervention studies"[tw] OR "case-control

	studies"[MeSH Terms] OR "case-control"[tw] OR "cohort studies"[MeSH Terms] OR cohort[tw] OR "longitudinal studies"[MeSH Terms] OR "longitudinal"[tw] OR longitudinally[tw] OR "prospective"[tw] OR prospectively[tw] OR "retrospective studies"[MeSH Terms] OR "retrospective"[tw] OR "follow up"[tw] OR "comparative study"[Publication Type] OR "comparative study"[tw] OR systematic[subset] OR "meta-analysis"[Publication Type] OR "meta-analysis as topic"[MeSH Terms] OR "meta-analysis"[tw] OR "meta-analyses"[tw] OR randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR randomised[tiab] OR randomization[tiab] OR randomisation[tiab] OR placebo[tiab] OR "drug therapy"[Subheading] OR randomly[tiab] OR trial[tiab] OR groups[tiab] OR Clinical trial[pt] OR "clinical trial"[tw] OR "clinical trials"[tw] NOT (Editorial[ptyp] OR Letter[ptyp] OR Case Reports[ptyp] OR Comment[ptyp])
#5	#1 AND #2 AND #3 AND #4
#6	#5 NOT (animals[mh] NOT humans[mh])
#7	#6 limits: English, Publication Date from 2000-present

KQ 4—What are the comparative safety and effectiveness of available antiarrhythmic agents and electrical cardioversion for conversion of atrial fibrillation to sinus rhythm? Do the comparative safety and effectiveness of these therapies differ among specific patient subgroups of interest?

Set #	**Terms**
#1	"Atrial Fibrillation"[Mesh] OR "atrial fibrillation"[tiab] OR (atrial[tiab] AND fibrillation[tiab]) OR afib[tiab] OR "atrial flutter"[MeSH Terms] OR "atrial flutter"[tiab]
#2	"Anti-Arrhythmia Agents"[Mesh] OR "Anti-Arrhythmia Agents"[Pharmacological Action] OR ((antiarrhythmic[tiab] OR antiarrhythmia[tiab]) AND (agent[tiab] OR agents[tiab] OR drug[tiab] OR drugs[tiab])) OR "flecainide"[MeSH Terms] OR "flecainide"[tiab] OR "propafenone"[MeSH Terms] OR "propafenone"[tiab] OR "amiodarone"[MeSH Terms] OR "amiodarone"[tiab] OR "sotalol"[MeSH Terms] OR "sotalol"[tiab] OR "ibutilide"[Supplementary Concept] OR "ibutilide"[tiab] OR "dofetilide"[Supplementary Concept] OR "dofetilide"[tiab] OR "dronedarone"[Supplementary Concept] OR "dronedarone"[tiab] OR "Disopyramide"[Mesh] OR Disopyramide[tiab]
#3	"electric countershock"[MeSH Terms] OR electrical[tiab] OR cardioversion[tiab]
#4	"evaluation studies"[Publication Type] OR "evaluation studies as topic"[MeSH Terms] OR "evaluation study"[tw] OR evaluation studies[tw] OR "intervention studies"[MeSH Terms] OR "intervention study"[tw] OR "intervention studies"[tw] OR "case-control studies"[MeSH Terms] OR "case-control"[tw] OR "cohort studies"[MeSH Terms] OR cohort[tw] OR "longitudinal studies"[MeSH Terms] OR "longitudinal"[tw] OR longitudinally[tw] OR "prospective"[tw] OR prospectively[tw] OR "retrospective studies"[MeSH Terms] OR "retrospective"[tw] OR "follow up"[tw] OR "comparative study"[Publication Type] OR "comparative study"[tw] OR systematic[subset] OR "meta-analysis"[Publication Type] OR "meta-analysis as topic"[MeSH Terms] OR "meta-analysis"[tw] OR "meta-analyses"[tw] OR

	randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR randomised[tiab] OR randomization[tiab] OR randomisation[tiab] OR placebo[tiab] OR "drug therapy"[Subheading] OR randomly[tiab] OR trial[tiab] OR groups[tiab] OR Clinical trial[pt] OR "clinical trial"[tw] OR "clinical trials"[tw] NOT (Editorial[ptyp] OR Letter[ptyp] OR Case Reports[ptyp] OR Comment[ptyp])
#5	#1 AND (#2 OR #3) AND #4
#6	#5 NOT (animals[mh] NOT humans[mh])
#7	#6 limits: English, Publication Date from 2000-present

KQ 5—What are the comparative safety and effectiveness of newer procedural rhythm-control therapies, other nonpharmacological rhythm-control therapies, and pharmacological agents for maintenance of sinus rhythm in atrial fibrillation patients? Do the comparative safety and effectiveness of these therapies differ among specific patient subgroups of interest?

Set #	**Terms**
#1	"Atrial Fibrillation"[Mesh] OR "atrial fibrillation"[tiab] OR (atrial[tiab] AND fibrillation[tiab]) OR afib[tiab] OR "atrial flutter"[MeSH Terms] OR "atrial flutter"[tiab]
#2	"Catheter Ablation"[Mesh] OR "Cardiac Resynchronization Therapy"[Mesh] OR non-pharmacological[tiab] OR nonpharmacological[tiab] OR ablation[tiab] OR "surgical maze"[tiab] OR (surgical[tiab] AND maze[tiab]) OR resynchroni*[tiab] OR (ganglionic[tiab] AND ablation[tiab]) OR (ganglionated[tiab] AND ablation[tiab]) OR denervation[tiab] OR "pulmonary vein isolation"[tiab] OR (pulmonary[tiab] AND isolation[tiab]) OR "electric countershock"[MeSH Terms] OR electrical[tiab] OR cardioversion[tiab]
#3	"Anti-Arrhythmia Agents"[Mesh] OR "Anti-Arrhythmia Agents"[Pharmacological Action] OR ((antiarrhythmic[tiab] OR antiarrhythmia[tiab]) AND (agent[tiab] OR agents[tiab] OR drug[tiab] OR drugs[tiab])) OR "flecainide"[MeSH Terms] OR "flecainide"[tiab] OR "propafenone"[MeSH Terms] OR "propafenone"[tiab] OR "amiodarone"[MeSH Terms] OR "amiodarone"[tiab] OR "sotalol"[MeSH Terms] OR "sotalol"[tiab] OR "ibutilide"[Supplementary Concept] OR "ibutilide"[tiab] OR "dofetilide"[Supplementary Concept] OR "dofetilide"[tiab] OR "dronedarone"[Supplementary Concept] OR "dronedarone"[tiab] OR "Disopyramide"[Mesh] OR Disopyramide[tiab]
#4	rhythm[tiab]
#5	"evaluation studies"[Publication Type] OR "evaluation studies as topic"[MeSH Terms] OR "evaluation study"[tw] OR evaluation studies[tw] OR "intervention studies"[MeSH Terms] OR "intervention study"[tw] OR "intervention studies"[tw] OR "case-control studies"[MeSH Terms] OR "case-control"[tw] OR "cohort studies"[MeSH Terms] OR cohort[tw] OR "longitudinal studies"[MeSH Terms] OR "longitudinal"[tw] OR longitudinally[tw] OR "prospective"[tw] OR prospectively[tw] OR "retrospective studies"[MeSH Terms] OR "retrospective"[tw] OR "follow up"[tw] OR "comparative study"[Publication Type] OR "comparative study"[tw] OR systematic[subset] OR "meta-analysis"[Publication Type] OR "meta-analysis as topic"[MeSH Terms] OR "meta-analysis"[tw] OR "meta-analyses"[tw] OR randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR randomised[tiab] OR

	randomization[tiab] OR randomisation[tiab] OR placebo[tiab] OR "drug therapy"[Subheading] OR randomly[tiab] OR trial[tiab] OR groups[tiab] OR Clinical trial[pt] OR "clinical trial"[tw] OR "clinical trials"[tw] NOT (Editorial[ptyp] OR Letter[ptyp] OR Case Reports[ptyp] OR Comment[ptyp])
#6	#1 AND (#2 OR #3) AND #4 AND #5
#7	#6 NOT (animals[mh] NOT humans[mh])
#8	#7 Limits English, Publication Date from 2000-present

KQ 6—What are the comparative safety and effectiveness of rate-control therapies versus rhythm-control therapies in patients with atrial fibrillation? Do the comparative safety and effectiveness of these therapies differ among specific patient subgroups of interest?

Set #	**Terms**
#1	"Atrial Fibrillation"[Mesh] OR "atrial fibrillation"[tiab] OR (atrial[tiab] AND fibrillation[tiab]) OR afib[tiab] OR "atrial flutter"[MeSH Terms] OR "atrial flutter"[tiab]
#2	((nonpharmacological[tiab] OR non-pharmacological[tiab] OR "Pacemaker, Artificial"[Mesh] OR pacemaker[tiab] OR (cardiac[tiab] AND (pace[tiab] OR pacing[tiab]) AND artificial[tiab]) OR "Cardiac Pacing, Artificial"[Mesh] OR "Atrioventricular Node"[Mesh] OR AVN[tiab] OR ((atrioventricular[tiab] OR atrio-ventricular[tiab]) AND (nodal[tiab] OR node[tiab])) OR "catheter ablation"[MeSH Terms] OR "catheter ablation"[tiab] OR "Anti-Arrhythmia Agents"[Mesh] OR "Anti-Arrhythmia Agents"[Pharmacological Action] OR ((antiarrhythmic[tiab] OR antiarrhythmia[tiab]) AND (agent[tiab] OR agents[tiab] OR drug[tiab] OR drugs[tiab]))) AND (“heart rate”[mesh] OR rate[tiab])) OR "metoprolol"[MeSH Terms] OR "metoprolol"[tiab] OR "atenolol"[MeSH Terms] OR "atenolol"[tiab] OR "carvedilol"[Supplementary Concept] OR "carvedilol"[tiab] OR "bisoprolol"[MeSH Terms] OR "bisoprolol"[tiab] OR "timolol"[MeSH Terms] OR "timolol"[tiab] OR "esmolol"[Supplementary Concept] OR "esmolol"[tiab] OR "nebivolol"[Supplementary Concept] OR "nebivolol"[tiab] OR verapamil[tiab] OR "verapamil"[MeSH Terms] OR "diltiazem"[MeSH Terms] OR "diltiazem"[tiab] OR "digoxin"[MeSH Terms] OR "digoxin"[tiab] OR “Adrenergic beta-Antagonists"[Mesh] OR "Adrenergic beta-Antagonists"[Pharmacological Action] OR beta-blocker[tiab] OR beta-blockers[tiab] OR "Calcium Channel Blockers"[Mesh] OR "Calcium Channel Blockers" [Pharmacological Action] OR "Acebutolol"[Mesh] OR acebutolol[tiab] OR "Nadolol"[Mesh] OR Nadolol[tiab]
#3	("Catheter Ablation"[Mesh] OR "Cardiac Resynchronization Therapy"[Mesh] OR non-pharmacological[tiab] OR nonpharmacological[tiab] OR ablation[tiab] OR "surgical maze"[tiab] OR (surgical[tiab] AND maze[tiab]) OR resynchroni*[tiab] OR (ganglionic[tiab] AND ablation[tiab]) OR (ganglionated[tiab] AND ablation[tiab]) OR denervation[tiab] OR "pulmonary vein isolation"[tiab] OR (pulmonary[tiab] AND isolation[tiab]) OR "electric countershock"[MeSH Terms] OR electrical[tiab] OR cardioversion[tiab] OR "Anti-Arrhythmia Agents"[Mesh] OR "Anti-Arrhythmia Agents"[Pharmacological Action] OR ((antiarrhythmic[tiab] OR antiarrhythmia[tiab]) AND (agent[tiab] OR agents[tiab] OR drug[tiab] OR drugs[tiab])) AND rhythm[tiab]) OR "flecainide"[MeSH Terms] OR "flecainide"[tiab] OR "propafenone"[MeSH Terms]

	OR "propafenone"[tiab] OR "amiodarone"[MeSH Terms] OR "amiodarone"[tiab] OR "sotalol"[MeSH Terms] OR "sotalol"[tiab] OR "ibutilide"[Supplementary Concept] OR "ibutilide"[tiab] OR "dofetilide"[Supplementary Concept] OR "dofetilide"[tiab] OR "dronedarone"[Supplementary Concept] OR "dronedarone"[tiab] OR "Disopyramide"[Mesh] OR Disopyramide[tiab]
#3	"evaluation studies"[Publication Type] OR "evaluation studies as topic"[MeSH Terms] OR "evaluation study"[tw] OR evaluation studies[tw] OR "intervention studies"[MeSH Terms] OR "intervention study"[tw] OR "intervention studies"[tw] OR "case-control studies"[MeSH Terms] OR "case-control"[tw] OR "cohort studies"[MeSH Terms] OR cohort[tw] OR "longitudinal studies"[MeSH Terms] OR "longitudinal"[tw] OR longitudinally[tw] OR "prospective"[tw] OR prospectively[tw] OR "retrospective studies"[MeSH Terms] OR "retrospective"[tw] OR "follow up"[tw] OR "comparative study"[Publication Type] OR "comparative study"[tw] OR systematic[subset] OR "meta-analysis"[Publication Type] OR "meta-analysis as topic"[MeSH Terms] OR "meta-analysis"[tw] OR "meta-analyses"[tw] OR randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR randomised[tiab] OR randomization[tiab] OR randomisation[tiab] OR placebo[tiab] OR "drug therapy"[Subheading] OR randomly[tiab] OR trial[tiab] OR groups[tiab] OR Clinical trial[pt] OR "clinical trial"[tw] OR "clinical trials"[tw] NOT (Editorial[ptyp] OR Letter[ptyp] OR Case Reports[ptyp] OR Comment[ptyp])
#4	#1 AND #2 AND #3 AND #4
#5	#4 NOT (animals[mh] NOT humans[mh])
#6	#5 limits: English, Publication Date from 2000-present

Eliminated KQ*—What are the comparative diagnostic accuracy, diagnostic thinking, therapeutic, and patient outcome efficacy of echocardiographic studies and other clinical parameters for predicting successful conversion, successful ablation, successful maintenance of sinus rhythm, and improved outcomes in patients with atrial fibrillation?

*Note: This KQ was eliminated from the CER for scoping reasons following discussions with AHRQ and the TEP members. Since the KQ was removed after the original searches were performed, we have included documentation of the search strategy below. The results from this search are reflected in the totals depicted in the literature flow diagram.

Set #	**Terms**
#1	"Atrial Fibrillation"[Mesh] OR "atrial fibrillation"[tiab] OR (atrial[tiab] AND fibrillation[tiab]) OR afib[tiab] OR "atrial flutter"[MeSH Terms] OR "atrial flutter"[tiab]
#2	predictors[tiab] OR predict[tiab] OR predicting[tiab] OR predicts[tiab] OR predicted[tiab] OR prognosis[tiab] OR prognostic[tiab] OR prognosis[MeSH] OR accurately[tiab] OR accuracy[tiab] OR accurate[tiab] OR reliability[tiab] OR sensitivity[tiab] OR specificity[tiab] OR "Sensitivity and Specificity"[Mesh] OR “Treatment Outcome”[MeSH] OR Diagnosis[MeSH] OR diagnostic[tiab]
#3	maintain[tiab] OR maintenance[tiab] OR maintained[tiab] OR success[tiab] OR

	successful[tiab] OR conversion[tiab] OR restoration[tiab] OR restored[tiab]
#4	"evaluation studies"[Publication Type] OR "evaluation studies as topic"[MeSH Terms] OR "evaluation study"[tw] OR evaluation studies[tw] OR "intervention studies"[MeSH Terms] OR "intervention study"[tw] OR "intervention studies"[tw] OR "case-control studies"[MeSH Terms] OR "case-control"[tw] OR "cohort studies"[MeSH Terms] OR cohort[tw] OR "longitudinal studies"[MeSH Terms] OR "longitudinal"[tw] OR longitudinally[tw] OR "prospective"[tw] OR prospectively[tw] OR "retrospective studies"[MeSH Terms] OR "retrospective"[tw] OR "follow up"[tw] OR "comparative study"[Publication Type] OR "comparative study"[tw] OR systematic[subset] OR "meta-analysis"[Publication Type] OR "meta-analysis as topic"[MeSH Terms] OR "meta-analysis"[tw] OR "meta-analyses"[tw] OR randomized controlled trial[pt] OR controlled clinical trial[pt] OR randomized[tiab] OR randomised[tiab] OR randomization[tiab] OR randomisation[tiab] OR placebo[tiab] OR "drug therapy"[Subheading] OR randomly[tiab] OR trial[tiab] OR groups[tiab] OR Clinical trial[pt] OR "clinical trial"[tw] OR "clinical trials"[tw] NOT (Editorial[ptyp] OR Letter[ptyp] OR Case Reports[ptyp] OR Comment[ptyp])NOT (Editorial[ptyp] OR Letter[ptyp] OR Case Reports[ptyp] OR Comment[ptyp])
#5	#1 AND #2 AND #3 AND #4
#6	#5 NOT (animals[mh] NOT humans[mh])
#7	#6 English, Publication Date from 2000-present

Embase® search strategy (December 16, 2011)

Platform: Embase.com

KQ 1—What are the comparative safety and effectiveness of pharmacological agents used for ventricular rate control in patients with atrial fibrillation? Do the comparative safety and effectiveness of these therapies differ among specific patient subgroups of interest?

Set #	Terms
#1	'heart atrium fibrillation'/exp OR 'heart atrium flutter'/exp OR “atrial fibrillation”:ab,ti OR (atrial:ab,ti AND fibrillation:ab,ti) OR afib:ab,ti OR “atrial flutter”:ab,ti
#2	'antiarrhythmic agent'/exp OR 'metoprolol'/exp OR 'atenolol'/exp OR 'carvedilol'/exp OR 'bisoprolol'/exp OR 'timolol'/exp OR 'esmolol'/exp OR 'nebivolol'/exp OR 'verapamil'/exp OR 'diltiazem'/exp OR 'digoxin'/exp OR 'acetyldigoxin'/exp OR 'alpha acetyldigoxin'/exp OR 'metildigoxin'/exp OR 'digoxigenin'/exp OR 'beta adrenergic receptor blocking agent'/exp OR 'calcium channel blocking agent'/exp OR 'acebutolol'/exp OR 'nadolol'/exp OR 'amiodarone'/exp OR 'dronedarone'/exp OR ((antiarrhythmic:ab,ti OR antiarrhythmia:ab,ti) AND (agent:ab,ti OR agents:ab,ti OR drug:ab,ti OR drugs:ab,ti)) OR metoprolol:ab,ti OR atenolol:ab,ti OR carvedilol:ab,ti OR bisoprolol:ab,ti OR timolol:ab,ti OR esmolol:ab,ti OR nebivolol:ab,ti OR verapamil:ab,ti OR diltiazem:ab,ti OR digoxin:ab,ti OR beta-blocker:ab,ti OR beta-blockers:ab,ti OR acebutolol:ab,ti OR Nadolol:ab,ti OR Amiodarone:ab,ti OR dronedarone:ab,ti
#3	'randomized controlled trial'/exp OR 'crossover procedure'/exp OR 'double blind

	procedure'/exp OR 'single blind procedure'/exp OR random*:ab,ti OR factorial*:ab,ti OR crossover*:ab,ti OR (cross NEAR/1 over*):ab,ti OR placebo*:ab,ti OR (doubl* NEAR/1 blind*):ab,ti OR (singl* NEAR/1 blind*):ab,ti OR assign*:ab,ti OR allocat*:ab,ti OR volunteer*:ab,ti OR 'clinical study'/exp OR “clinical trial”:ti,ab OR “clinical trials”:ti,ab OR 'evaluation'/exp OR “evaluation study”:ab,ti OR “evaluation studies”:ab,ti OR “intervention study”:ab,ti OR “intervention studies”:ab,ti OR “case control”:ab,ti OR 'cohort analysis'/exp OR cohort:ab,ti OR longitudinal*:ab,ti OR prospective:ab,ti OR prospectively:ab,ti OR retrospective:ab,ti OR 'follow up'/exp OR “follow up”:ab,ti OR 'comparative effectiveness'/exp OR 'comparative study'/exp OR “comparative study”:ab,ti OR “comparative studies”:ab,ti OR 'evidence based medicine'/exp OR “systematic review”:ab,ti OR “meta-analysis”:ab,ti OR “meta-analyses”:ab,ti NOT ('case report'/exp OR 'case study'/exp OR 'editorial'/exp OR 'letter'/exp OR 'note'/exp)
#4	#1 AND #2 AND #3
#5	#4, Limits: Humans, English, 2000-present
#6	#5 AND [embase]/lim NOT [medline]/lim

KQ 2—What are the comparative safety and effectiveness of a strict rate-control strategy versus a more lenient rate-control strategy in patients with atrial fibrillation? Do the comparative safety and effectiveness of these therapies differ among specific patient subgroups of interest?

Set #	**Terms**
#1	'heart atrium fibrillation'/exp OR 'heart atrium flutter'/exp OR 'atrial fibrillation':ab,ti OR (atrial:ab,ti AND fibrillation:ab,ti) OR afib:ab,ti OR 'atrial flutter':ab,ti
#2	((rate:ab,ti OR 'heart rate'/exp) AND control:ab,ti) AND (strategy:ab,ti OR lenient:ab,ti OR strict:ab,ti)
#3	'randomized controlled trial'/exp OR 'crossover procedure'/exp OR 'double blind procedure'/exp OR 'single blind procedure'/exp OR random*:ab,ti OR factorial*:ab,ti OR crossover*:ab,ti OR (cross NEAR/1 over*):ab,ti OR placebo*:ab,ti OR (doubl* NEAR/1 blind*):ab,ti OR (singl* NEAR/1 blind*):ab,ti OR assign*:ab,ti OR allocat*:ab,ti OR volunteer*:ab,ti OR 'clinical study'/exp OR “clinical trial”:ti,ab OR “clinical trials”:ti,ab OR 'evaluation'/exp OR “evaluation study”:ab,ti OR “evaluation studies”:ab,ti OR “intervention study”:ab,ti OR “intervention studies”:ab,ti OR “case control”:ab,ti OR 'cohort analysis'/exp OR cohort:ab,ti OR longitudinal*:ab,ti OR prospective:ab,ti OR prospectively:ab,ti OR retrospective:ab,ti OR 'follow up'/exp OR “follow up”:ab,ti OR 'comparative effectiveness'/exp OR 'comparative study'/exp OR “comparative study”:ab,ti OR “comparative studies”:ab,ti OR 'evidence based medicine'/exp OR “systematic review”:ab,ti OR “meta-analysis”:ab,ti OR “meta-analyses”:ab,ti NOT ('case report'/exp OR 'case study'/exp OR 'editorial'/exp OR 'letter'/exp OR 'note'/exp)
#4	#1 AND #2 AND #3
#5	#4, Limits: Humans, English, 2000-present
#6	#5 AND [embase]/lim NOT [medline]/lim

KQ 3—What are the comparative safety and effectiveness of newer procedural and other nonpharmacological rate-control therapies compared with pharmacological agents in patients with atrial fibrillation who have failed initial pharmacotherapy? Do the comparative safety and effectiveness of these therapies differ among specific patient subgroups of interest?

Set #	Terms
#1	'heart atrium fibrillation'/exp OR 'heart atrium flutter'/exp OR 'atrial fibrillation':ab,ti OR (atrial:ab,ti AND fibrillation:ab,ti) OR afib:ab,ti OR 'atrial flutter':ab,ti
#2	nonpharmacological:ab,ti OR non-pharmacological:ab,ti OR 'artificial heart pacemaker'/exp OR pacemaker:ab,ti OR (cardiac:ab,ti AND (pace:ab,ti OR pacing:ab,ti) AND artificial:ab,ti) OR 'heart pacing'/exp OR 'heart atrioventricular node'/exp OR AVN:ab,ti OR ((atrioventricular:ab,ti OR atrio-ventricular:ab,ti) AND (nodal:ab,ti OR node:ab,ti)) OR 'catheter ablation'/exp OR "catheter ablation":ab,ti
#3	rate:ab,ti OR 'heart rate'/exp
#4	'randomized controlled trial'/exp OR 'crossover procedure'/exp OR 'double blind procedure'/exp OR 'single blind procedure'/exp OR random*:ab,ti OR factorial*:ab,ti OR crossover*:ab,ti OR (cross NEAR/1 over*):ab,ti OR placebo*:ab,ti OR (doubl* NEAR/1 blind*):ab,ti OR (singl* NEAR/1 blind*):ab,ti OR assign*:ab,ti OR allocat*:ab,ti OR volunteer*:ab,ti OR 'clinical study'/exp OR “clinical trial”:ti,ab OR “clinical trials”:ti,ab OR 'evaluation'/exp OR “evaluation study”:ab,ti OR “evaluation studies”:ab,ti OR “intervention study”:ab,ti OR “intervention studies”:ab,ti OR “case control”:ab,ti OR 'cohort analysis'/exp OR cohort:ab,ti OR longitudinal*:ab,ti OR prospective:ab,ti OR prospectively:ab,ti OR retrospective:ab,ti OR 'follow up'/exp OR “follow up”:ab,ti OR 'comparative effectiveness'/exp OR 'comparative study'/exp OR “comparative study”:ab,ti OR “comparative studies”:ab,ti OR 'evidence based medicine'/exp OR “systematic review”:ab,ti OR “meta-analysis”:ab,ti OR “meta-analyses”:ab,ti NOT ('case report'/exp OR 'case study'/exp OR 'editorial'/exp OR 'letter'/exp OR 'note'/exp)
#5	#1 AND #2 AND #3 AND #4
#6	#5, Limits: Humans, English, 2000-present
#7	#6 AND [embase]/lim NOT [medline]/lim

KQ 4 —What are the comparative safety and effectiveness of available antiarrhythmic agents and electrical cardioversion for conversion of atrial fibrillation to sinus rhythm? Do the comparative safety and effectiveness of these therapies differ among specific patient subgroups of interest?

Set #	Terms
#1	'heart atrium fibrillation'/exp OR 'heart atrium flutter'/exp OR 'atrial fibrillation':ab,ti OR (atrial:ab,ti AND fibrillation:ab,ti) OR afib:ab,ti OR 'atrial flutter':ab,ti
#2	'antiarrhythmic agent'/exp OR ((antiarrhythmic:ab,ti OR antiarrhythmia:ab,ti) AND (agent:ab,ti OR agents:ab,ti OR drug:ab,ti OR drugs:ab,ti)) OR 'flecainide'/exp OR flecainide:ab,ti OR 'propafenone'/exp OR propafenone:ab,ti OR 'amiodarone'/exp OR amiodarone:ab,ti OR 'sotalol'/exp OR sotalol:ab,ti OR 'ibutilide'/exp OR ibutilide:ab,ti OR 'dofetilide'/exp OR dofetilide:ab,ti OR 'dronedarone'/exp OR dronedarone:ab,ti OR

	'disopyramide'/exp OR Disopyramide:ab,ti
#3	'cardioversion'/exp OR 'defibrillation'/exp OR electrical:ab,ti OR cardioversion:ab,ti
#4	'randomized controlled trial'/exp OR 'crossover procedure'/exp OR 'double blind procedure'/exp OR 'single blind procedure'/exp OR random*:ab,ti OR factorial*:ab,ti OR crossover*:ab,ti OR (cross NEAR/1 over*):ab,ti OR placebo*:ab,ti OR (doubl* NEAR/1 blind*):ab,ti OR (singl* NEAR/1 blind*):ab,ti OR assign*:ab,ti OR allocat*:ab,ti OR volunteer*:ab,ti OR 'clinical study'/exp OR “clinical trial”:ti,ab OR “clinical trials”:ti,ab OR 'evaluation'/exp OR “evaluation study”:ab,ti OR “evaluation studies”:ab,ti OR “intervention study”:ab,ti OR “intervention studies”:ab,ti OR “case control”:ab,ti OR 'cohort analysis'/exp OR cohort:ab,ti OR longitudinal*:ab,ti OR prospective:ab,ti OR prospectively:ab,ti OR retrospective:ab,ti OR 'follow up'/exp OR “follow up”:ab,ti OR 'comparative effectiveness'/exp OR 'comparative study'/exp OR “comparative study”:ab,ti OR “comparative studies”:ab,ti OR 'evidence based medicine'/exp OR “systematic review”:ab,ti OR “meta-analysis”:ab,ti OR “meta-analyses”:ab,ti NOT ('case report'/exp OR 'case study'/exp OR 'editorial'/exp OR 'letter'/exp OR 'note'/exp)
#5	#1 AND (#2 OR #3) AND #4
#6	#5, Limits: Humans, English, 2000-present
#7	#6 AND [embase]/lim NOT [medline]/lim

KQ 5— What are the comparative safety and effectiveness of newer procedural rhythm-control therapies, other nonpharmacological rhythm-control therapies, and pharmacological agents for maintenance of sinus rhythm in atrial fibrillation patients? Do the comparative safety and effectiveness of these therapies differ among specific patient subgroups of interest?

Set #	**Terms**
#1	'heart atrium fibrillation'/exp OR 'heart atrium flutter'/exp OR 'atrial fibrillation':ab,ti OR (atrial:ab,ti AND fibrillation:ab,ti) OR afib:ab,ti OR 'atrial flutter':ab,ti
#2	'catheter ablation'/exp OR 'cardiac resynchronization therapy'/exp OR non-pharmacological:ab,ti OR nonpharmacological:ab,ti OR ablation:ab,ti OR "surgical maze":ab,ti OR (surgical:ab,ti AND maze:ab,ti) OR resynchroni*:ab,ti OR (ganglionic:ab,ti AND ablation:ab,ti) OR (ganglionated:ab,ti AND ablation:ab,ti) OR denervation:ab,ti OR "pulmonary vein isolation":ab,ti OR (pulmonary:ab,ti AND isolation:ab,ti) OR 'heart stimulation'/exp OR electrical:ab,ti OR cardioversion:ab,ti
#3	'antiarrhythmic agent'/exp OR ((antiarrhythmic:ab,ti OR antiarrhythmia:ab,ti) AND (agent:ab,ti OR agents:ab,ti OR drug:ab,ti OR drugs:ab,ti)) OR 'flecainide'/exp OR flecainide:ab,ti OR 'propafenone'/exp OR propafenone:ab,ti OR 'amiodarone'/exp OR amiodarone:ab,ti OR 'sotalol'/exp OR sotalol:ab,ti OR 'ibutilide'/exp OR ibutilide:ab,ti OR 'dofetilide'/exp OR dofetilide:ab,ti OR 'dronedarone'/exp OR dronedarone:ab,ti OR 'disopyramide'/exp OR Disopyramide:ab,ti
#4	rhythm:ab,ti
#5	'randomized controlled trial'/exp OR 'crossover procedure'/exp OR 'double blind procedure'/exp OR 'single blind procedure'/exp OR random*:ab,ti OR factorial*:ab,ti OR crossover*:ab,ti OR (cross NEAR/1 over*):ab,ti OR placebo*:ab,ti OR (doubl* NEAR/1 blind*):ab,ti OR (singl* NEAR/1 blind*):ab,ti OR assign*:ab,ti OR allocat*:ab,ti OR volunteer*:ab,ti OR 'clinical study'/exp OR “clinical trial”:ti,ab OR

	“clinical trials”:ti,ab OR 'evaluation'/exp OR “evaluation study”:ab,ti OR “evaluation studies”:ab,ti OR “intervention study”:ab,ti OR “intervention studies”:ab,ti OR “case control”:ab,ti OR 'cohort analysis'/exp OR cohort:ab,ti OR longitudinal*:ab,ti OR prospective:ab,ti OR prospectively:ab,ti OR retrospective:ab,ti OR 'follow up'/exp OR “follow up”:ab,ti OR 'comparative effectiveness'/exp OR 'comparative study'/exp OR “comparative study”:ab,ti OR “comparative studies”:ab,ti OR 'evidence based medicine'/exp OR “systematic review”:ab,ti OR “meta-analysis”:ab,ti OR “meta-analyses”:ab,ti NOT ('case report'/exp OR 'case study'/exp OR 'editorial'/exp OR 'letter'/exp OR 'note'/exp)
#6	#1 AND (#2 OR #3) AND #4 AND #5
#7	#6, Limits: Humans, English, 2000-present
#8	#7 AND [embase]/lim NOT [medline]/lim

KQ 6—What are the comparative safety and effectiveness of rate-control therapies versus rhythm-control therapies in patients with atrial fibrillation? Do the comparative safety and effectiveness of these therapies differ among specific patient subgroups of interest?

Set #	**Terms**
#1	'heart atrium fibrillation'/exp OR 'heart atrium flutter'/exp OR 'atrial fibrillation':ab,ti OR (atrial:ab,ti AND fibrillation:ab,ti) OR afib:ab,ti OR 'atrial flutter':ab,ti
#2	((nonpharmacological:ab,ti OR non-pharmacological:ab,ti OR 'artificial heart pacemaker'/exp OR pacemaker:ab,ti OR (cardiac:ab,ti AND (pace:ab,ti OR pacing:ab,ti) AND artificial:ab,ti) OR 'heart pacing'/exp OR 'heart atrioventricular node'/exp OR AVN:ab,ti OR ((atrioventricular:ab,ti OR atrio-ventricular:ab,ti) AND (nodal:ab,ti OR node:ab,ti)) OR 'catheter ablation'/exp OR "catheter ablation":ab,ti OR 'antiarrhythmic agent'/exp OR ((antiarrhythmic:ab,ti OR antiarrhythmia:ab,ti) AND (agent:ab,ti OR agents:ab,ti OR drug:ab,ti OR drugs:ab,ti))) AND ('heart rate'/exp OR rate:ab,ti)) OR 'metoprolol'/exp OR metoprolol:ab,ti OR 'atenolol'/exp OR atenolol:ab,ti OR 'carvedilol'/exp OR carvedilol:ab,ti OR 'bisoprolol'/exp OR bisoprolol:ab,ti OR 'timolol'/exp OR timolol:ab,ti OR 'esmolol'/exp OR esmolol:ab,ti OR 'nebivolol'/exp OR nebivolol:ab,ti OR verapamil:ab,ti OR 'verapamil'/exp OR 'diltiazem'/exp OR diltiazem:ab,ti OR 'digoxin'/exp OR 'acetyldigoxin'/exp OR 'alpha acetyldigoxin'/exp OR 'metildigoxin'/exp OR digoxin:ab,ti OR 'beta adrenergic receptor blocking agent'/exp OR beta-blocker:ab,ti OR beta-blockers:ab,ti OR 'calcium channel blocking agent'/exp OR 'acebutolol'/exp OR acebutolol:ab,ti OR 'nadolol'/exp OR Nadolol:ab,ti
#3	('catheter ablation'/exp OR 'cardiac resynchronization therapy'/exp OR non-pharmacological:ab,ti OR nonpharmacological:ab,ti OR ablation:ab,ti OR "surgical maze":ab,ti OR (surgical:ab,ti AND maze:ab,ti) OR resynchroni*:ab,ti OR (ganglionic:ab,ti AND ablation:ab,ti) OR (ganglionated:ab,ti AND ablation:ab,ti) OR denervation:ab,ti OR "pulmonary vein isolation":ab,ti OR (pulmonary:ab,ti AND isolation:ab,ti) OR 'cardioversion'/exp OR 'defibrillation'/exp OR electrical:ab,ti OR cardioversion:ab,ti OR 'antiarrhythmic agent'/exp OR ((antiarrhythmic:ab,ti OR antiarrhythmia:ab,ti) AND (agent:ab,ti OR agents:ab,ti OR drug:ab,ti OR drugs:ab,ti)) AND rhythm:ab,ti) OR 'flecainide'/exp OR flecainide:ab,ti OR 'propafenone'/exp OR propafenone:ab,ti OR 'amiodarone'/exp OR amiodarone:ab,ti OR 'sotalol'/exp OR sotalol:ab,ti OR 'ibutilide'/exp OR ibutilide:ab,ti OR 'dofetilide'/exp OR dofetilide:ab,ti

	OR 'dronedarone'/exp OR dronedarone:ab,ti OR 'disopyramide'/exp OR Disopyramide:ab,ti
#4	'randomized controlled trial'/exp OR 'crossover procedure'/exp OR 'double blind procedure'/exp OR 'single blind procedure'/exp OR random*:ab,ti OR factorial*:ab,ti OR crossover*:ab,ti OR (cross NEAR/1 over*):ab,ti OR placebo*:ab,ti OR (doubl* NEAR/1 blind*):ab,ti OR (singl* NEAR/1 blind*):ab,ti OR assign*:ab,ti OR allocat*:ab,ti OR volunteer*:ab,ti OR 'clinical study'/exp OR “clinical trial”:ti,ab OR “clinical trials”:ti,ab OR 'evaluation'/exp OR “evaluation study”:ab,ti OR “evaluation studies”:ab,ti OR “intervention study”:ab,ti OR “intervention studies”:ab,ti OR “case control”:ab,ti OR 'cohort analysis'/exp OR cohort:ab,ti OR longitudinal*:ab,ti OR prospective:ab,ti OR prospectively:ab,ti OR retrospective:ab,ti OR 'follow up'/exp OR “follow up”:ab,ti OR 'comparative effectiveness'/exp OR 'comparative study'/exp OR “comparative study”:ab,ti OR “comparative studies”:ab,ti OR 'evidence based medicine'/exp OR “systematic review”:ab,ti OR “meta-analysis”:ab,ti OR “meta-analyses”:ab,ti NOT ('case report'/exp OR 'case study'/exp OR 'editorial'/exp OR 'letter'/exp OR 'note'/exp)
#5	#1 AND #2 AND #3 AND #4
#6	#5, Limits: English, Humans, 2000-present
#7	#6 AND [embase]/lim NOT [medline]/lim

Eliminated KQ*—What are the comparative diagnostic accuracy, diagnostic thinking, therapeutic, and patient outcome efficacy of echocardiographic studies and other clinical parameters for predicting successful conversion, successful ablation, successful maintenance of sinus rhythm, and improved outcomes in patients with atrial fibrillation?

*Note: This KQ was eliminated from the CER for scoping reasons following discussions with AHRQ and the TEP members. Since the KQ was removed after the original searches were performed, we have included documentation of the search strategy below. The results from this search are reflected in the totals depicted in the literature flow diagram.

Set #	**Terms**
#1	'heart atrium fibrillation'/exp OR 'heart atrium flutter'/exp OR 'atrial fibrillation':ab,ti OR (atrial:ab,ti AND fibrillation:ab,ti) OR afib:ab,ti OR 'atrial flutter':ab,ti
#2	predictors:ab,ti OR predict:ab,ti OR predicting:ab,ti OR predicts:ab,ti OR predicted:ab,ti OR prognosis:ab,ti OR prognostic:ab,ti OR 'prognosis'/exp OR accurately:ab,ti OR accuracy:ab,ti OR accurate:ab,ti OR reliability:ab,ti OR sensitivity:ab,ti OR specificity:ab,ti OR 'sensitivity and specificity'/exp OR 'treatment outcome'/exp OR 'diagnosis'/exp OR diagnostic:ab,ti
#3	maintain:ab,ti OR maintenance:ab,ti OR maintained:ab,ti OR success:ab,ti OR successful:ab,ti OR conversion:ab,ti OR restoration:ab,ti OR restored:ab,ti
#4	'randomized controlled trial'/exp OR 'crossover procedure'/exp OR 'double blind procedure'/exp OR 'single blind procedure'/exp OR random*:ab,ti OR factorial*:ab,ti OR crossover*:ab,ti OR (cross NEAR/1 over*):ab,ti OR placebo*:ab,ti OR (doubl* NEAR/1 blind*):ab,ti OR (singl* NEAR/1 blind*):ab,ti OR assign*:ab,ti OR

	allocat*:ab,ti OR volunteer*:ab,ti OR 'clinical study'/exp OR “clinical trial”:ti,ab OR “clinical trials”:ti,ab OR 'evaluation'/exp OR “evaluation study”:ab,ti OR “evaluation studies”:ab,ti OR “intervention study”:ab,ti OR “intervention studies”:ab,ti OR “case control”:ab,ti OR 'cohort analysis'/exp OR cohort:ab,ti OR longitudinal*:ab,ti OR prospective:ab,ti OR prospectively:ab,ti OR retrospective:ab,ti OR 'follow up'/exp OR “follow up”:ab,ti OR 'comparative effectiveness'/exp OR 'comparative study'/exp OR “comparative study”:ab,ti OR “comparative studies”:ab,ti OR 'evidence based medicine'/exp OR “systematic review”:ab,ti OR “meta-analysis”:ab,ti OR “meta-analyses”:ab,ti NOT ('case report'/exp OR 'case study'/exp OR 'editorial'/exp OR 'letter'/exp OR 'note'/exp)
#5	#1 AND #2 AND #3 AND #4
#6	#5, Limits: English, Humans, 2000-present
#7	#6 AND [embase]/lim NOT [medline]/lim

Cochrane search strategy (December 9, 2011)

Platform: Wiley
Database searched: Cochrane Database of Systematic Reviews

KQ 1—What are the comparative safety and effectiveness of pharmacological agents used for ventricular rate control in patients with atrial fibrillation? Do the comparative safety and effectiveness of these therapies differ among specific patient subgroups of interest?

Set #	Terms
#1	MeSH descriptor Atrial Fibrillation explode all trees OR MeSH descriptor Atrial Flutter explode all trees OR "atrial fibrillation":ab,ti OR (atrial:ab,ti AND fibrillation:ab,ti) OR afib:ab,ti OR "atrial flutter":ab,ti
#2	MeSH descriptor Anti-Arrhythmia Agents explode all trees OR MeSH descriptor Adrenergic beta-Antagonists explode all trees OR MeSH descriptor Calcium Channel Blockers explode all trees OR ((antiarrhythmic:ab,ti OR antiarrhythmia:ab,ti) AND (agent:ab,ti OR agents:ab,ti OR drug:ab,ti OR drugs:ab,ti)) OR metoprolol:ab,ti,kw OR atenolol:ab,ti,kw OR carvedilol:ab,ti,kw OR bisoprolol:ab,ti,kw OR timolol:ab,ti,kw OR esmolol:ab,ti,kw OR nebivolol:ab,ti,kw OR verapamil:ab,ti,kw OR diltiazem:ab,ti,kw OR digoxin:ab,ti,kw OR beta-blocker:ab,ti OR beta-blockers:ab,ti OR Acebutolol:ab,ti,kw OR Nadolol:ab,ti,kw OR Amiodarone:ab,ti,kw OR dronedarone:ab,ti,kw
#3	#1 AND #2
#4	#3, Limits: Cochrane Reviews, 2000-2011

KQ 2—What are the comparative safety and effectiveness of a strict rate-control strategy versus a more lenient rate-control strategy in patients with atrial fibrillation? Do the comparative safety and effectiveness of these therapies differ among specific patient subgroups of interest?

Set #	Terms
#1	MeSH descriptor Atrial Fibrillation explode all trees OR MeSH descriptor Atrial Flutter

	explode all trees OR "atrial fibrillation":ab,ti OR (atrial:ab,ti AND fibrillation:ab,ti) OR afib:ab,ti OR "atrial flutter":ab,ti
#2	((rate:ab,ti OR heart rate:ab,ti,kw) AND control:ab,ti) AND (strategy:ab,ti OR lenient:ab,ti OR strict:ab,ti)
#3	#1 AND #2
#4	#3, Limits: Cochrane Reviews, 2000-2011

KQ 3—What are the comparative safety and effectiveness of newer procedural and other nonpharmacological rate-control therapies compared with pharmacological agents in patients with atrial fibrillation who have failed initial pharmacotherapy? Do the comparative safety and effectiveness of these therapies differ among specific patient subgroups of interest?

Set #	Terms
#1	MeSH descriptor Atrial Fibrillation explode all trees OR MeSH descriptor Atrial Flutter explode all trees OR "atrial fibrillation":ab,ti OR (atrial:ab,ti AND fibrillation:ab,ti) OR afib:ab,ti OR "atrial flutter":ab,ti
#2	MeSH descriptor Pacemaker, Artificial explode all trees OR MeSH descriptor Cardiac Pacing, Artificial explode all trees OR MeSH descriptor Atrioventricular Node explode all trees OR MeSH descriptor Catheter Ablation explode all trees OR nonpharmacological:ab,ti OR non-pharmacological:ab,ti OR pacemaker:ab,ti OR (cardiac:ab,ti AND (pace:ab,ti OR pacing:ab,ti) AND artificial:ab,ti) OR AVN:ab,ti OR ((atrioventricular:ab,ti OR atrio-ventricular:ab,ti) AND (nodal:ab,ti OR node:ab,ti)) OR "catheter ablation":ab,ti
#3	rate:ab,ti OR heart rate:ab,ti,kw
#4	#1 AND #2 AND #3
#5	#4, Limits: Cochrane Reviews, 2000-2011

KQ 4—What are the comparative safety and effectiveness of available antiarrhythmic agents and electrical cardioversion for conversion of atrial fibrillation to sinus rhythm? Do the comparative safety and effectiveness of these therapies differ among specific patient subgroups of interest?

Set #	Terms
#1	MeSH descriptor Atrial Fibrillation explode all trees OR MeSH descriptor Atrial Flutter explode all trees OR "atrial fibrillation":ab,ti OR (atrial:ab,ti AND fibrillation:ab,ti) OR afib:ab,ti OR "atrial flutter":ab,ti
#2	MeSH descriptor Anti-Arrhythmia Agents explode all trees OR ((antiarrhythmic:ab,ti OR antiarrhythmia:ab,ti) AND (agent:ab,ti OR agents:ab,ti OR drug:ab,ti OR drugs:ab,ti)) OR flecainide:ab,ti,kw OR propafenone:ab,ti,kw OR amiodarone:ab,ti,kw OR sotalol:ab,ti,kw OR ibutilide:ab,ti,kw OR dofetilide:ab,ti,kw OR dronedarone:ab,ti,kw OR Disopyramide:ab,ti,kw
#3	MeSH descriptor Electric Countershock explode all trees OR electrical:ab,ti OR cardioversion:ab,ti
#4	#1 AND (#2 OR #3)

#5	#4, Limits: Cochrane Reviews, 2000-2011

KQ 5—What are the comparative safety and effectiveness of newer procedural rhythm-control therapies, other nonpharmacological rhythm-control therapies, and pharmacological agents for maintenance of sinus rhythm in atrial fibrillation patients? Do the comparative safety and effectiveness of these therapies differ among specific patient subgroups of interest?

Set #	**Terms**
#1	MeSH descriptor Atrial Fibrillation explode all trees OR MeSH descriptor Atrial Flutter explode all trees OR "atrial fibrillation":ab,ti OR (atrial:ab,ti AND fibrillation:ab,ti) OR afib:ab,ti OR "atrial flutter":ab,ti
#2	MeSH descriptor Catheter Ablation explode all trees OR MeSH descriptor Cardiac Resynchronization Therapy explode all trees OR MeSH descriptor Electric Countershock explode all trees OR non-pharmacological:ab,ti OR nonpharmacological:ab,ti OR ablation:ab,ti OR "surgical maze":ab,ti OR (surgical:ab,ti AND maze:ab,ti) OR resynchroni*:ab,ti OR (ganglionic:ab,ti AND ablation:ab,ti) OR (ganglionated:ab,ti AND ablation:ab,ti) OR denervation:ab,ti OR "pulmonary vein isolation":ab,ti OR (pulmonary:ab,ti AND isolation:ab,ti) OR electrical:ab,ti OR cardioversion:ab,ti
#3	MeSH descriptor Anti-Arrhythmia Agents explode all trees OR ((antiarrhythmic:ab,ti OR antiarrhythmia:ab,ti) AND (agent:ab,ti OR agents:ab,ti OR drug:ab,ti OR drugs:ab,ti)) OR flecainide:ab,ti,kw OR propafenone:ab,ti,kw OR amiodarone:ab,ti,kw OR sotalol:ab,ti,kw OR ibutilide:ab,ti,kw OR dofetilide:ab,ti,kw OR dronedarone:ab,ti,kw OR Disopyramide:ab,ti,kw
#4	rhythm:ab,ti
#5	#1 AND (#2 OR #3) AND #4
#6	#5, Limits: Cochrane Reviews, 2000-2011

KQ 6—What are the comparative safety and effectiveness of rate-control therapies versus rhythm-control therapies in patients with atrial fibrillation? Do the comparative safety and effectiveness of these therapies differ among specific patient subgroups of interest?

Set #	Terms
#1	MeSH descriptor Atrial Fibrillation explode all trees OR MeSH descriptor Atrial Flutter explode all trees OR "atrial fibrillation":ab,ti OR (atrial:ab,ti AND fibrillation:ab,ti) OR afib:ab,ti OR "atrial flutter":ab,ti
#2	MeSH descriptor Pacemaker, Artificial explode all trees OR MeSH descriptor Cardiac Pacing, Artificial explode all trees OR MeSH descriptor Atrioventricular Node explode all trees OR MeSH descriptor Catheter Ablation explode all trees OR MeSH descriptor Anti-Arrhythmia Agents explode all trees OR MeSH descriptor Adrenergic beta-Antagonists explode all trees OR MeSH descriptor Calcium Channel Blockers explode all trees OR ((nonpharmacological:ab,ti OR non-pharmacological:ab,ti OR pacemaker:ab,ti OR (cardiac:ab,ti AND (pace:ab,ti OR pacing:ab,ti) AND artificial:ab,ti)) OR AVN:ab,ti OR ((atrioventricular:ab,ti OR atrio-ventricular:ab,ti) AND (nodal:ab,ti OR node:ab,ti)) OR "catheter ablation":ab,ti OR ((antiarrhythmic:ab,ti OR antiarrhythmia:ab,ti) AND (agent:ab,ti OR agents:ab,ti OR

	drug:ab,ti OR drugs:ab,ti) AND (heart rate:ab,ti,kw OR rate:ab,ti)) OR metoprolol:ab,ti,kw OR atenolol:ab,ti,kw OR carvedilol:ab,ti,kw OR bisoprolol:ab,ti,kw OR timolol:ab,ti,kw OR esmolol:ab,ti,kw OR nebivolol:ab,ti,kw OR verapamil:ab,ti,kw OR diltiazem:ab,ti,kw OR digoxin:ab,ti,kw OR OR beta-blocker:ab,ti OR beta-blockers:ab,ti OR Acebutolol:ab,ti,kw OR Nadolol:ab,ti,kw
#3	MeSH descriptor Catheter Ablation explode all trees OR MeSH descriptor Cardiac Resynchronization Therapy explode all trees OR MeSH descriptor Electric Countershock explode all trees OR MeSH descriptor Anti-Arrhythmia Agents explode all trees OR non-pharmacological:ab,ti OR nonpharmacological:ab,ti OR ablation:ab,ti OR "surgical maze":ab,ti OR (surgical:ab,ti AND maze:ab,ti) OR resynchroni*:ab,ti OR (ganglionic:ab,ti AND ablation:ab,ti) OR (ganglionated:ab,ti AND ablation:ab,ti) OR denervation:ab,ti OR "pulmonary vein isolation":ab,ti OR (pulmonary:ab,ti AND isolation:ab,ti) OR electrical:ab,ti OR cardioversion:ab,ti OR ((antiarrhythmic:ab,ti OR antiarrhythmia:ab,ti) AND (agent:ab,ti OR agents:ab,ti OR drug:ab,ti OR drugs:ab,ti)) AND rhythm:ab,ti) OR flecainide:ab,ti,kw OR propafenone:ab,ti,kw OR amiodarone:ab,ti,kw OR sotalol:ab,ti,kw OR ibutilide:ab,ti,kw OR dofetilide:ab,ti,kw OR dronedarone:ab,ti,kw OR Disopyramide:ab,ti,kw
#4	#1 AND #2 AND #3
#5	#4, Limits: Cochrane Reviews, 2000-2011

Eliminated KQ*—What are the comparative diagnostic accuracy, diagnostic thinking, therapeutic, and patient outcome efficacy of echocardiographic studies and other clinical parameters for predicting successful conversion, successful ablation, successful maintenance of sinus rhythm, and improved outcomes in patients with atrial fibrillation?

*Note: This KQ was eliminated from the CER for scoping reasons following discussions with AHRQ and the TEP members. Since the KQ was removed after the original searches were performed, we have included documentation of the search strategy below. The results from this search are reflected in the totals depicted in the literature flow diagram.

Set #	**Terms**
#1	MeSH descriptor Atrial Fibrillation explode all trees OR MeSH descriptor Atrial Flutter explode all trees OR "atrial fibrillation":ab,ti OR (atrial:ab,ti AND fibrillation:ab,ti) OR afib:ab,ti OR "atrial flutter":ab,ti
#2	MeSH descriptor Prognosis explode all trees OR MeSH descriptor Sensitivity and Specificity explode all trees OR MeSH descriptor Treatment Outcome explode all trees OR MeSH descriptor Diagnosis explode all trees OR predictors:ab,ti OR predict:ab,ti OR predicting:ab,ti OR predicts:ab,ti OR predicted:ab,ti OR prognosis:ab,ti OR prognostic:ab,ti OR accurately:ab,ti OR accuracy:ab,ti OR accurate:ab,ti OR reliability:ab,ti OR sensitivity:ab,ti OR specificity:ab,ti OR diagnostic:ab,ti
#3	maintain:ab,ti OR maintenance:ab,ti OR maintained:ab,ti OR success:ab,ti OR successful:ab,ti OR conversion:ab,ti OR restoration:ab,ti OR restored:ab,ti
#4	#1 AND #2 and #3
#5	#4, Limits: Cochrane Reviews, 2000-2011

Grey Literature Searches

ClinicalTrials.gov (March 13, 2012)

Condition	atrial fibrillation OR afib OR atrial flutter
Intervention	Drug OR device OR procedure

Total number of results: 561

WHO: International Clinical Trials Registry Platform Search Portal (March 19, 2012)

Terms: atrial fibrillation OR afib OR atrial flutter

Total number of results: 765

ProQuest COS Conference Papers Index (March 13, 2012)

S1	All (atrial fibrillation OR afib OR atrial flutter)
S2	nonpharmacological OR non-pharmacological OR pacemaker OR (cardiac AND (pace OR pacing) AND artificial) OR AVN OR ((atrioventricular OR atrio-ventricular) AND (nodal OR node)) OR "catheter ablation" OR ((antiarrhythmic OR antiarrhythmia) AND (agent OR agents OR drug OR drugs)) OR metoprolol OR atenolol OR carvedilol OR bisoprolol OR timolol OR esmolol OR nebivolol OR verapamil OR diltiazem OR digoxin OR "Adrenergic beta-Antagonists" OR beta-blocker OR beta-blockers OR "Calcium Channel Blockers" OR Acebutolol OR Nadolol OR "Catheter Ablation" OR "Cardiac Resynchronization Therapy" OR non-pharmacological OR nonpharmacological OR ablation OR (surgical AND maze) OR resynchroni* OR (ganglionic AND ablation) OR (ganglionated AND ablation) OR denervation OR (pulmonary AND isolation) OR "electric countershock" OR electrical OR cardioversion OR flecainide OR propafenone OR propafenone OR amiodarone OR sotalol OR ibutilide OR dofetilide OR dronedarone OR Disopyramide OR (rate AND control AND (strict OR lenient OR strategy))
S3	S1 AND S2

Total number of results: 1747

Appendix B. Data Abstraction Elements

Study Characteristics

- Study Identifiers
  - Study Name or Acronym
  - Last name of first author
  - Publication Year
- Additional Articles Used in This Abstraction
- Study Objectives
- Study Dates
  - Enrollment Start (Mon and YYYY)
  - Enrollment End (Mon and YYYY)
  - Follow-up End (Mon and YYYY)
- Study Sites
  - Single Center, Multicenter, Unclear/Not reported, Other (specify)
  - Number of sites
- Geographic Location (Select all that apply)
  - US, Canada, UK, Europe, S. America, C. America, Asia, Africa, Australia/NZ, Unclear/Not reported, Other (specify)
- Study Design
  - Prospective RCT
  - Prospective cohort
  - Retrospective cohort
  - Case-control
  - Cross-sectional
  - Other (specify)
- Funding Source (Select all that apply)
  - Government, Industry, Non-govt/Non-industry, Unclear/Not reported, Other (specify)
- Setting (Select all that apply)
  - In-patient, Out-patient, Emergency Room, Unclear/Not reported, Other (specify)
- Enrollment Approach (Select all that apply)
  - Consecutive patients, Convenience sample, Unclear/Not reported, Other (specify)
- Study Inclusion and Exclusion Criteria
  - Copy/paste inclusion and exclusion criteria as reported
  - Is the study entirely composed of patients with any of the following characteristics/ conditions?
    - Paroxysmal AF
    - Persistent AF
    - Permanent AF
    - Heart failure
    - Coronary artery disease
    - Kidney disease
    - Hypertrophic cardiomyopathy
    - Thyroid disease
    - Pulmonary disease
    - Previously failed a rate- or rhythm-control pharmacological therapy strategy
    - Enlarged left atrium

        - High risk for stroke and bleeding events (e.g., patients with diabetes, heart failure, and hypertension)
        - Women
        - None of the above
- Study Enrollment/Study Completion
    - N Assessed for eligibility
    - N eligible
    - N enrolled/included
    - N completed follow-up (most distal timepoint of the primary outcome)
    - N analyzed
- Key Question Applicability (select all that apply)
    - KQ1, KQ2, KQ3, KQ4, KQ5, KQ6
- Comments

Baseline Characteristics - Record the following elements for Total Population, Arm 1, Arm 2, Arm 3, and Arm 4 (as applicable)

- Number of Patients, Age, Ethnicity, and Race
    - Number of Patients
        - Total
        - Female
        - Male
    - Percentage
        - Female
        - Male
    - Age
        - Mean
        - Standard Deviation
        - Standard Error
        - Median
        - IQR
        - Min
        - Max
        - NR
    - Ethnicity
        - Hispanic or Latino
        - Not Hispanic or Latino
        - NR
    - Race
        - Black/African American
        - American Indian or Alaska Native
        - Asian
        - Native Hawaiian or other Pacific Islander
        - White
        - Multiracial
        - Other (specify)
        - NR
- Co-morbidities and Previous Treatment Failures
    - Diabetes
        - N
        - %

- Heart failure, All types (define)
  - N
  - %
- Heart failure, Systolic (define)
  - N
  - %
- Heart failure, Diastolic (define)
  - N
  - %
- Hypertension
  - N
  - %
- Kidney disease (define)
  - N
  - %
- Hypertrophic cardiomyopathy (define)
  - N
  - %
- Thyroid disease (define)
  - N
  - %
- Pulmonary disease (define)
  - N
  - %
- Coronary artery disease
  - N
  - %
- Enlarged left atrium (define)
  - N
  - %
- LVEF, Mean or median
  - Mean
  - Median
  - SD
  - SE
  - IQR
- LVEF, Number of patients (<35% or other [define])
  - N
  - %
- Previously failed rate-control pharmacological therapy (define)
  - N
  - %
- Previously failed rhythm-control pharmacological therapy (define)
  - N
  - %
- Duration of AF (include units)
  - mean
  - Median
  - SD
  - SE

        - IQR
    - Permanent AF
        - N
        - %
    - Paroxysmal AF
        - N
        - %
    - Persistent AF
        - N
        - %
- Comments

Intervention Characteristics - Record the following elements for Arm 1, Arm 2, Arm 3, and Arm 4 (as applicable)

- Intervention Characteristics
    - Intervention Components (check all that apply)
        - Placebo or control
        - Pharmacological agents for rate control
        - Procedures for rate control
        - Pharmacological agents for rhythm control
        - Procedures for rhythm control
    - Placebo/Control Details
        - Placebo
        - Usual care control/optimal medical therapy
        - Other (specify)
    - Rate-control Pharmacological Agent Details
        - Beta-blockers
            - Acebutolol
            - Atenolol
            - Bisoprolol
            - Carvedilol
            - Esmolol
            - Metoprolol
            - Nadalol
            - Nebivolol
            - Timolol
            - Specific medication not reported
        - Calcium channel blockers
            - Diltiazem
            - Verapamil
            - Specific medication not reported
            - Other
                - Amiodarone
                - Digoxin
                - Dronedarone
                - Specific medication not reported
    - Rate-control Procedure Details
        - AVN ablation and permanent pacemaker implantation
    - Rate-control Target

        - Strict (define)
        - Lenient (define)
        - Other (define)
        - NA
    - Rhythm-control Pharmacological Agent Details
        - Amiodarone
        - Beta-blockers
            - Acebutolol
            - Atenolol
            - Carvedilol
            - Esmolol
            - Metoprolol
            - Nadalol
            - Nebivolol
            - Timolol
            - Specific medication not reported
        - Calcium channel blockers
            - Diltiazem
            - Verapamil
            - Specific medication not reported
        - Disopyramide
        - Dofetilide
        - Dronedarone
        - Flecainide
        - Ibutilide
        - Propafenone
        - Sotalol
    - Rhythm-control Procedure Details
        - Electrical cardioversion
        - Pulmonary vein ablation – open surgical
        - Pulmonary vein ablation – minimally invasive
        - Pulmonary vein ablation – transcatheter
        - Surgical Maze
        - Cardiac resynchronization
- Intervention Descriptors
    - Describe the intervention received by patients in Arm 1, Arm 2, Arm 3, and Arm 4 (as applicable)
- Duration of Follow-up - Record the following elements for Arm 1, Arm 2, Arm 3, and Arm 4 (as applicable)
    - Mean follow-up
    - Mean Variability (SD, SE, IQR)
    - Median follow-up
    - Median Variability (SD, SE, IQR)
- Comments

Outcomes

- Select the outcome reported on this form
    - Restoration of sinus rhythm (conversion)
    - Maintenance of sinus rhythm

    - Recurrence of AF (specify time period)
    - Development of cardiomyopathy
    - All-cause mortality
    - Cardiac mortality
    - Myocardial infarction
    - CV hospitalizations
    - AF Hospitalizations
    - Heart failure symptoms
    - Control of AF symptoms (e.g., palpitations, exercise capacity)
    - Quality of life/ Functional status
    - Stroke
    - Other embolic events, excluding stroke (specify)
    - Mixed embolic events including stroke
    - Bleeding events (including hemorrhagic stroke)
    - Control of ventricular rate
    - Composite outcome
- Define/specify the following for the outcome, if applicable
    - Quality of life or functional status measure/scale
    - Stroke
    - Other embolic event
    - Control of ventricular rate
    - Components of composite outcomes
- Record additional details to describe outcome measure, as needed
- Timepoints to be abstracted (check all that apply)
    - Close to 1 month
    - Close to 3 months
    - Close to 6 months
    - Close to 1 yr
    - Most distal timepoint after one year
    - Untimed measure (e.g. time to event)
- For each timepoint, record the following elements as applicable
    - Group – Arm 1, Arm 2, Arm 3, Arm 4
    - N Analyzed (enter UNK if unknown)
    - Unadjusted Result
        - Mean
        - Median
        - Mean within group change
        - Mean between group change
        - Number of patients with outcome
        - % of patients with outcome
        - Events/denominator
        - Odds ratio (OR)
        - Hazard ratio (HR)
        - Relative risk (RR)
        - Other (specify)
    - Unadjusted Variability
        - Standard Error (SE)
        - Standard Deviation (SD)
        - IQR
        - 95% CI

        - Other % CI (specify)
        - Other (specify)
    - Unadjusted p-value between groups
    - Unadjusted Reference group (for comparison between groups)
    - Adjusted Result
        - Mean
        - Median
        - Mean within group change
        - Mean between group change
        - Number of patients with outcome
        - % of patients with outcome
        - Events/denominator
        - Odds ratio
        - Hazard ratio
        - Relative risk
        - Other (specify)
    - Adjusted Variability
        - Standard Error (SE)
        - Standard Deviation (SD)
        - IQR
        - 95% CI
        - Other % CI (specify)
        - Other (specify)
    - Adjusted p-value between groups
    - Adjusted Reference group (for comparison between groups)
    - Indicate the adjustments applied
- Subgroup analyses reported for this outcome?
    - Yes/No
        - If Yes, describe the subgroup analyses and summarize results
- Comments

Adverse Events

- Are adverse events reported? (Yes/No)
- Record the Number of patients, % of patients, and exact p-value the Total Population, Arm 1, Arm 2, Arm 3, and Arm 4 (as applicable) for the following:
    - Hypotension
    - Hypothyroidism
    - Hyperthyroidism
    - Bradyarrhythmias
    - Tachyarrhythmias
    - Proarrhythmias
    - Allergic Reactions
    - Hepatotoxicity
    - Neurotoxicity
    - Pulmonary Toxicity
    - Ophthalmologic Toxicity
    - Dermatologic Toxicity
    - Pulmonary Vein Stenosis
    - Left Atrial Esophageal Fistula
    - Phrenic Nerve Palsy

    - Other Adverse Drug Reaction (specify)
    - Other Procedural Complication (specify)
- Subgroup analyses reported for adverse events?
    - Yes/No
        - If yes, describe the subgroup analyses and summarize results
- Comments

Quality Assessment

- Study Type
    - RCT
    - Cohort
    - Case-Control
    - Cross-sectional
- If RCT:
    - Selection Bias
        - Was the allocation sequence generated adequately (e.g., random number table, computer-generated randomization)? (Yes/No/Unclear)
        - Was the allocation of treatment adequately concealed (e.g., pharmacy-controlled randomization or use of sequentially numbered sealed envelopes)? (Yes/No/Unclear)
        - Were participants analyzed within the groups they were originally assigned to? (Yes/No/Unclear)
        - Does the design or analysis control account for important confounding and modifying variables through matching, stratification, multivariable analysis, or other approaches? (Yes/No/Unclear)
    - Performance Bias
        - Did researchers rule out any impact from a concurrent intervention or an unintended exposure that might bias results? (Yes/No/Unclear)
        - Did the study maintain fidelity to the intervention protocol? (Yes/No/Unclear)
    - Attrition Bias
        - If attrition (overall or differential nonresponse, dropout, loss to follow-up, or exclusion of participants) was a concern, were missing data handled appropriately (e.g., intention-to-treat analysis and imputation)? (Yes/No/Unclear)
    - Detection Bias
        - In prospective studies, was the length of follow-up different between the groups, or in case-control studies, was the time period between the intervention/exposure and outcome different for cases and controls? (Yes/No/Unclear)
        - Were the outcome assessors blinded to the intervention or exposure status of participants? (Yes/No/Unclear)
        - Were interventions/exposures assessed/defined using valid and reliable measures, implemented consistently across all study participants? (Yes/No/Unclear)
        - Were outcomes assessed/defined using valid and reliable measures, implemented consistently across all study participants? (Yes/No/Unclear)
    - Reporting Bias
        - Were the potential outcomes prespecified by the researchers? Are all prespecified outcomes reported? (Yes/No/Unclear)

- If Cohort:
    - Selection Bias
        - Were participants analyzed within the groups they were originally assigned to? (Yes/No/Unclear)
        - Did the study apply inclusion/exclusion criteria uniformly to all comparison groups? (Yes/No/Unclear)
        - Did the strategy for recruiting participants into the study differ across study groups? (Yes/No/Unclear)
        - Does the design or analysis control account for important confounding and modifying variables through matching, stratification, multivariable analysis, or other approaches? (Yes/No/Unclear)
    - Performance Bias
        - Did researchers rule out any impact from a concurrent intervention or an unintended exposure that might bias results? (Yes/No/Unclear)
        - Did the study maintain fidelity to the intervention protocol? (Yes/No/Unclear)
    - Attrition Bias
        - If attrition (overall or differential nonresponse, dropout, loss to follow-up, or exclusion of participants) was a concern, were missing data handled appropriately (e.g., intention-to-treat analysis and imputation)? (Yes/No/Unclear)
    - Detection Bias
        - In prospective studies, was the length of follow-up different between the groups, or in case-control studies, was the time period between the intervention/exposure and outcome different for cases and controls? (Yes/No/Unclear)
        - Were the outcome assessors blinded to the intervention or exposure status of participants? (Yes/No/Unclear)
        - Were interventions/exposures assessed/defined using valid and reliable measures, implemented consistently across all study participants? (Yes/No/Unclear)
        - Were outcomes assessed/defined using valid and reliable measures, implemented consistently across all study participants? (Yes/No/Unclear)
        - Were confounding variables assessed using valid and reliable measures, implemented consistently across all study participants? (Yes/No/Unclear)
    - Reporting Bias
        - Were the potential outcomes prespecified by the researchers? Are all prespecified outcomes reported? (Yes/No/Unclear)
- If Case-Control:
    - Selection Bias
        - Were cases and controls selected appropriately (e.g., appropriate diagnostic criteria or definitions, equal application of exclusion criteria to case and controls, sampling not influenced by exposure status) (Yes/No/Unclear)
        - Does the design or analysis control account for important confounding and modifying variables through matching, stratification, multivariable analysis, or other approaches? (Yes/No/Unclear)
    - Performance Bias
        - Did researchers rule out any impact from a concurrent intervention or an unintended exposure that might bias results? (Yes/No/Unclear)

        - Did the study maintain fidelity to the intervention protocol? (Yes/No/Unclear)
    - Attrition Bias
        - If attrition (overall or differential nonresponse, dropout, loss to follow-up, or exclusion of participants) was a concern, were missing data handled appropriately (e.g., intention-to-treat analysis and imputation)? (Yes/No/Unclear)
    - Detection Bias
        - In prospective studies, was the length of follow-up different between the groups, or in case-control studies, was the time period between the intervention/exposure and outcome different for cases and controls? (Yes/No/Unclear)
        - Were the outcome assessors blinded to the intervention or exposure status of participants? (Yes/No/Unclear)
        - Were interventions/exposures assessed/defined using valid and reliable measures, implemented consistently across all study participants? (Yes/No/Unclear)
        - Were outcomes assessed/defined using valid and reliable measures, implemented consistently across all study participants? (Yes/No/Unclear)
        - Were confounding variables assessed using valid and reliable measures, implemented consistently across all study participants? (Yes/No/Unclear)
    - Reporting Bias
        - Were the potential outcomes prespecified by the researchers? Are all prespecified outcomes reported? (Yes/No/Unclear)
- If Cross-sectional:
    - Selection Bias
        - Did the study apply inclusion/exclusion criteria uniformly to all comparison groups? (Yes/No/Unclear)
        - Does the design or analysis control account for important confounding and modifying variables through matching, stratification, multivariable analysis, or other approaches? (Yes/No/Unclear)
    - Performance Bias
        - Did researchers rule out any impact from a concurrent intervention or an unintended exposure that might bias results? (Yes/No/Unclear)
    - Attrition Bias
        - If attrition (overall or differential nonresponse, dropout, loss to follow-up, or exclusion of participants) was a concern, were missing data handled appropriately (e.g., intention-to-treat analysis and imputation)? (Yes/No/Unclear)
    - Detection Bias
        - Were the outcome assessors blinded to the intervention or exposure status of participants? (Yes/No/Unclear)
        - Were interventions/exposures assessed/defined using valid and reliable measures, implemented consistently across all study participants? (Yes/No/Unclear)
        - Were outcomes assessed/defined using valid and reliable measures, implemented consistently across all study participants? (Yes/No/Unclear)
        - Were confounding variables assessed using valid and reliable measures, implemented consistently across all study participants? (Yes/No/Unclear)
    - Reporting Bias

        - Were the potential outcomes prespecified by the researchers? Are all prespecified outcomes reported? (Yes/No/Unclear)
- Other Bias
    - If applicable, describe any other concerns that may impact risk of bias.
- Overall Study Rating (Good/Fair/Poor)
    - **Good** (low risk of bias). These studies have the least bias, and the results are considered valid. These studies adhere to the commonly held concepts of high quality, including the following: a clear description of the population, setting, approaches, and comparison groups; appropriate measurement of outcomes; appropriate statistical and analytical methods and reporting; no reporting errors; a low dropout rate; and clear reporting of dropouts.
    - **Fair**. These studies are susceptible to some bias, but not enough to invalidate the results. They do not meet all the criteria required for a rating of good quality because they have some deficiencies, but no flaw is likely to cause major bias. The study may be missing information, making it difficult to assess limitations and potential problems.
    - **Poor** (high risk of bias). These studies have significant flaws that may have invalidated the results. They have serious errors in design, analysis, or reporting; large amounts of missing information; or discrepancies in reporting.
    - If the study is rated as "Fair" or "Poor," provide rationale.

Applicability – Use the PICOS format to identify specific issues, if any, that may limit the applicability of the study to this review.

- Population (P)
    - Narrow eligibility criteria and exclusion of those with comorbidities
    - Large differences between demographics of study population and community patients
    - Narrow or unrepresentative severity, stage of illness, or comorbidities
    - Run-in period with high exclusion rate for nonadherence or side effects
    - Event rates much higher or lower than observed in population-based studies
- Intervention (I)
    - Doses or schedules not reflected in current practice
    - Monitoring practices or visit frequency not used in typical practice
    - Older versions of an intervention no longer in common use
    - Cointerventions that are likely to modify effectiveness of therapy
    - Highly selected intervention team or level of training/proficiency not widely available
- Comparator (C)
    - Inadequate comparison therapy
    - Use of substandard alternative therapy
- Outcomes (O)
    - Composite outcomes that mix outcomes of different significance
    - Short-term or surrogate outcomes
- Setting (S)
    - Standard of care differ markedly from setting of interest
    - Specialty population nor level of care differs from that seen in community
- Comments

Appendix C. List of Included Studies

Abreu Filho CA, Lisboa LA, Dallan LA, et al. Effectiveness of the maze procedure using cooled-tip radiofrequency ablation in patients with permanent atrial fibrillation and rheumatic mitral valve disease. Circulation. 2005;112(9 Suppl):I20-5. PMID: 16159816.

Akpinar B, Guden M, Sagbas E, et al. Combined radiofrequency modified maze and mitral valve procedure through a port access approach: early and mid-term results. Eur J Cardiothorac Surg. 2003;24(2):223-30. PMID: 12895612.

Alatawi F, Gurevitz O, White RD, et al. Prospective, randomized comparison of two biphasic waveforms for the efficacy and safety of transthoracic biphasic cardioversion of atrial fibrillation. Heart Rhythm. 2005;2(4):382-7. PMID: 15851340.

Albrecht A, Kalil RA, Schuch L, et al. Randomized study of surgical isolation of the pulmonary veins for correction of permanent atrial fibrillation associated with mitral valve disease. J Thorac Cardiovasc Surg. 2009;138(2):454-9. PMID: 19619795.

Alp NJ, Rahman S, Bell JA, et al. Randomised comparison of antero-lateral versus antero-posterior paddle positions for DC cardioversion of persistent atrial fibrillation. Int J Cardiol. 2000;75(2-3):211-6. PMID: 11077136.

Ambler JJ, Deakin CD. A randomized controlled trial of efficacy and ST change following use of the Welch-Allyn MRL PIC biphasic waveform versus damped sine monophasic waveform for external DC cardioversion. Resuscitation. 2006;71(2):146-51. PMID: 16987583.

Anonymous. Maintenance of sinus rhythm in patients with atrial fibrillation: an AFFIRM substudy of the first antiarrhythmic drug. J Am Coll Cardiol. 2003;42(1):20-9. PMID: 12849654.

Arentz T, Weber R, Burkle G, et al. Small or large isolation areas around the pulmonary veins for the treatment of atrial fibrillation? Results from a prospective randomized study. Circulation. 2007;115(24):3057-63. PMID: 17562956.

Atwood JE, Myers JN, Tang XC, et al. Exercise capacity in atrial fibrillation: a substudy of the Sotalol-Amiodarone Atrial Fibrillation Efficacy Trial (SAFE-T). Am Heart J. 2007;153(4):566-72. PMID: 17383295.

Balla I, Petrela E, Kondili A. Pharmacological conversion of recent atrial fibrillation: a randomized, placebo-controlled study of three antiarrhythmic drugs. Anadolu Kardiyol Derg. 2011;11(7):600-6. PMID: 21911317.

Batcher EL, Tang XC, Singh BN, et al. Thyroid function abnormalities during amiodarone therapy for persistent atrial fibrillation. Am J Med. 2007;120(10):880-5. PMID: 17904459.

Bellandi F, Simonetti I, Leoncini M, et al. Long-term efficacy and safety of propafenone and sotalol for the maintenance of sinus rhythm after conversion of recurrent symptomatic atrial fibrillation. Am J Cardiol. 2001;88(6):640-5. PMID: 11564387.

Bertaglia E, D'Este D, Zerbo F, et al. Success of serial external electrical cardioversion of persistent atrial fibrillation in maintaining sinus rhythm; a randomized study. Eur Heart J. 2002;23(19):1522-8. PMID: 12242072.

Bittner A, Monnig G, Zellerhoff S, et al. Randomized study comparing duty-cycled bipolar and unipolar radiofrequency with point-by-point ablation in pulmonary vein isolation. Heart Rhythm. 2011;8(9):1383-90. PMID: 21457793.

Blomstrom-Lundqvist C, Johansson B, Berglin E, et al. A randomized double-blind study of epicardial left atrial cryoablation for permanent atrial fibrillation in patients undergoing mitral valve surgery: the SWEDish Multicentre Atrial Fibrillation study (SWEDMAF). Eur Heart J. 2007;28(23):2902-8. PMID: 17984136.

Boersma LV, Castella M, van Boven W, et al. Atrial Fibrillation Catheter Ablation Versus Surgical Ablation Treatment (FAST): A 2-Center Randomized Clinical Trial. Circulation. 2012;125(1):23-30. PMID: 22082673.

Boodhoo L, Mitchell AR, Bordoli G, et al. DC cardioversion of persistent atrial fibrillation: a comparison of two protocols. Int J Cardiol. 2007;114(1):16-21. PMID: 16644036.

Boos C, Thomas MD, Jones A, et al. Higher energy monophasic DC cardioversion for persistent atrial fibrillation: is it time to start at 360 joules?. Ann Noninvasive Electrocardiol. 2003;8(2):121-6. PMID: 12848792.

Brazdzionyte J, Babarskiene RM, Stanaitiene G. Anterior-posterior versus anterior-lateral electrode position for biphasic cardioversion of atrial fibrillation. Medicina (Kaunas). 2006;42(12):994-8. PMID: 17211107.

Brignole M, Menozzi C, Gasparini M, et al. An evaluation of the strategy of maintenance of sinus rhythm by antiarrhythmic drug therapy after ablation and pacing therapy in patients with paroxysmal atrial fibrillation. Eur Heart J. 2002;23(11):892-900. PMID: 12042011.

Bulava A, Hanis J, Sitek D, et al. Catheter ablation for paroxysmal atrial fibrillation: a randomized comparison between multielectrode catheter and point-by-point ablation. Pacing Clin Electrophysiol. 2010;33(9):1039-46. PMID: 20528997.

Bush D, Martin LW, Leman R, et al. Atrial fibrillation among African Americans, Hispanics and Caucasians: clinical features and outcomes from the AFFIRM trial. J Natl Med Assoc. 2006;98(3):330-9. PMID: 16573295.

Calo L, Lamberti F, Loricchio ML, et al. Left atrial ablation versus biatrial ablation for persistent and permanent atrial fibrillation: a prospective and randomized study. J Am Coll Cardiol. 2006;47(12):2504-12. PMID: 16781381.

Capucci A, Villani GQ, Aschieri D, et al. Oral amiodarone increases the efficacy of direct-current cardioversion in restoration of sinus rhythm in patients with chronic atrial fibrillation. Eur Heart J. 2000;21(1):66-73. PMID: 10610746.

Carlsson J, Boos C. Confounding factors in rate versus rhythm control trials in patients with atrial fibrillation: lessons from the strategies of treatment of atrial fibrillation (STAF) pilot study. Card Electrophysiol Rev. 2003;7(2):122-6. PMID: 14618034.

Carlsson J, Miketic S, Windeler J, et al. Randomized trial of rate-control versus rhythm-control in persistent atrial fibrillation: the Strategies of Treatment of Atrial Fibrillation (STAF) study. J Am Coll Cardiol. 2003;41(10):1690-6. PMID: 12767648.

Chen M, Yang B, Chen H, et al. Randomized comparison between pulmonary vein antral isolation versus complex fractionated electrogram ablation for paroxysmal atrial fibrillation. J Cardiovasc Electrophysiol. 2011;22(9):973-81. PMID: 21539635.

Chevalier P, Leizorovicz A, Maureira P, et al. Left atrial radiofrequency ablation during mitral valve surgery: a prospective randomized multicentre study (SAFIR). Arch Cardiovasc Dis. 2009;102(11):769-75. PMID: 19944393.

Chung MK, Shemanski L, Sherman DG, et al. Functional status in rate- versus rhythm-control strategies for atrial fibrillation: results of the Atrial Fibrillation Follow-Up Investigation of Rhythm Management (AFFIRM) Functional Status Substudy. J Am Coll Cardiol. 2005;46(10):1891-9. PMID: 16286177.

Corrado A, Bonso A, Madalosso M, et al. Impact of systematic isolation of superior vena cava in addition to pulmonary vein antrum isolation on the outcome of paroxysmal, persistent, and permanent atrial fibrillation ablation: results from a randomized study. J Cardiovasc Electrophysiol. 2010;21(1):1-5. PMID: 19732237.

Curtis AB, Gersh BJ, Corley SD, et al. Clinical factors that influence response to treatment strategies in atrial fibrillation: the Atrial Fibrillation Follow-up Investigation of Rhythm Management (AFFIRM) study. Am Heart J. 2005;149(4):645-9. PMID: 15990747.

de Lima GG, Kalil RA, Leiria TL, et al. Randomized study of surgery for patients with permanent atrial fibrillation as a result of mitral valve disease. Ann Thorac Surg. 2004;77(6):2089-94; discussion 2094-5. PMID: 15172273.

De Simone A, De Pasquale M, De Matteis C, et al. VErapamil plus antiarrhythmic drugs reduce atrial fibrillation recurrences after an electrical cardioversion (VEPARAF Study). Eur Heart J. 2003;24(15):1425-9. PMID: 12909071.

De Simone A, Turco P, De Matteis C, et al. Effect of verapamil on secondary cardioversion in patients with early atrial fibrillation recurrence after electrical cardioversion. Am J Cardiol. 2002;90(2):185-7. PMID: 12106857.

Deisenhofer I, Estner H, Reents T, et al. Does electrogram guided substrate ablation add to the

success of pulmonary vein isolation in patients with paroxysmal atrial fibrillation? A prospective, randomized study. J Cardiovasc Electrophysiol. 2009;20(5):514-21. PMID: 19207759.

Delle Karth G, Geppert A, Neunteufl T, et al. Amiodarone versus diltiazem for rate control in critically ill patients with atrial tachyarrhythmias. Crit Care Med. 2001;29(6):1149-53. PMID: 11395591.

Demircan C, Cikriklar HI, Engindeniz Z, et al. Comparison of the effectiveness of intravenous diltiazem and metoprolol in the management of rapid ventricular rate in atrial fibrillation. Emerg Med J. 2005;22(6):411-4. PMID: 15911947.

Deneke T, Khargi K, Grewe PH, et al. Efficacy of an additional MAZE procedure using cooled-tip radiofrequency ablation in patients with chronic atrial fibrillation and mitral valve disease. A randomized, prospective trial. Eur Heart J. 2002;23(7):558-66. PMID: 11922646.

Di Biase L, Elayi CS, Fahmy TS, et al. Atrial fibrillation ablation strategies for paroxysmal patients: randomized comparison between different techniques. Circ Arrhythm Electrophysiol. 2009;2(2):113-9. PMID: 19808455.

Dixit S, Gerstenfeld EP, Callans DJ, et al. Comparison of cool tip versus 8-mm tip catheter in achieving electrical isolation of pulmonary veins for long-term control of atrial fibrillation: a prospective randomized pilot study. J Cardiovasc Electrophysiol. 2006;17(10):1074-9. PMID: 16879626.

Dixit S, Gerstenfeld EP, Ratcliffe SJ, et al. Single procedure efficacy of isolating all versus arrhythmogenic pulmonary veins on long-term control of atrial fibrillation: a prospective randomized study. Heart Rhythm. 2008;5(2):174-81. PMID: 18242535.

Dixit S, Marchlinski FE, Lin D, et al. Randomized Ablation Strategies for the Treatment of Persistent Atrial Fibrillation: RASTA Study. Circ Arrhythm Electrophysiol. 2012;5(2):287-94.PMID: 22139886.

Dorian P, Mangat I. Quality of life variables in the selection of rate versus rhythm control in patients with atrial fibrillation: observations from the Canadian Trial of Atrial Fibrillation. Card Electrophysiol Rev. 2003;7(3):276-9. PMID: 14739727.

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Appendix D. List of Excluded Studies

All studies listed below were reviewed in their full-text version and excluded for the reasons cited. Reasons for exclusion signify only the usefulness of the articles for this study and are not intended as criticisms of the articles.

Not available in English

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Appendix E. Key to Included Primary and Companion Articles

*Companion articles marked with an asterisk did not individually meet criteria for inclusion but were considered for supplemental information (e.g., methods data pertinent to an included study).

Study Designation	Primary Abstracted Article	Companion Articles*
5A Study (Antiarrhythmics After Ablation of Atrial Fibrillation)	Roux, 2009[1]	Leong-Sit, 2011[2]
A4 Study (Catheter ablation versus antiarrhythmic drugs for atrial fibrillation)	Jais, 2008[3]	None
AF-CHF (Atrial Fibrillation and Congestive Heart Failure)	Talajic, 2010[4]	Roy, 2008[5]
AFFIRM (Atrial Fibrillation Follow-up Investigation of Rhythm Management)	Anonymous, 2003[6]	None
	Wyse, 2002[7]	Guglin, 2010[8] Jenkins, 2005[9] Sherman, 2005[10] Steinberg, 2004[11] Bush, 2006[12] Chung, 2005[13] Curtis, 2005[14] Anonymous, 2002[15]*
AFFIRM (Atrial Fibrillation Follow-up Investigation of Rhythm Management) RACE (RAte Control vs. Electrical cardioversion)	Van Gelder, 2006[16]	Wyse, 2002[7] Van Gelder, 2002[17]
AIRCRAFT (Australian Intervention Randomized Control of Rate in Atrial Fibrillation Trial)	Weerasooriya, 2003[18]	Lim, 2007[19]
APAF (Ablation for Paroxysmal Atrial Fibrillation)	Pappone, 2006[20]	Pappone, 2011[21]
BEST AF (Biphasic energy selection for transthoracic cardioversion of atrial fibrillation)	Glover, 2008[22]	None

Study Designation	Primary Abstracted Article	Companion Articles*
CACAF (Catheter Ablation For The Cure Of Atrial Fibrillation Study)	Stabile, 2006[23]	None
CAFE-II (chronic atrial fibrillation and heart failure)	Shelton, 2009[24]	None
CTAF (Canadian Trial of Atrial Fibrillation)	Roy, 2000[25]	Dorian, 2002[26] Dorian, 2003[27] Lumer, 2002[28]
CRRAFT (Control of Rate versus Rhythm in rheumatic Atrial Fibrillation Trial)	Vora, 2004[29]	Vora, 2004 [30]
DIONYSOS (Randomized, Double-Blind TrIal to Evaluate the Efficacy and Safety of DrOnedarone [400 mg bid] Versus AmiodaroNe [600 mg qd for 28 daYS, then 200 mg qd Thereafter] for at Least 6 mOnths for the Maintenance of Sinus Rhythm in Patients with AF)	Le Heuzey, 2010[31]	None
FAST (Atrial Fibrillation Catheter Ablation Versus Surgical Ablation Treatment)	Boersma, 2011[32]	None
HOT CAFÉ (How to Treat Chronic Atrial Fibrillation)	Opolski, 2004[33]	Opolski, 2003[34] Pietrasik, 2007[35] Szulc, 2006[36]
MOBIPAPA	Kirchhof, 2005[37]	None
PABA-CHF (Pulmonary Vein Antrum Isolation versus AV Node Ablation with Bi-Ventricular Pacing for Treatment of Atrial Fibrillation in Patients with Congestive Heart Failure)	Khan, 2008[38]	None
PAF 2 (paroxysmal atrial Fibrillation)	Brignole, 2002[39]	None

Study Designation	Primary Abstracted Article	Companion Articles*
PIAF (Pharmacological Intervention in Atrial Fibrillation)	Hohnloser, 2000[40]	Gronefeld, 2003[41]
QOLAF (Quality of Life and Atrial Fibrillation)	Tsuneda, 2006[42]	None
RACE (RAte Control vs.Electrical cardioversion)	Groenveld, 2009[43]	Van Gelder, 2002[17]
	Van Gelder, 2002[17]	Hagens, 2004[44] Hagens, 2006[45] Rienstra, 2007[46] Rienstra, 2005[47] Hagens, 2005[48]
RACE II (Rate Control Efficacy in Permanent Atrial Fibrillation: a Comparison between Lenient versus Strict Rate Control II)	Van Gelder, 2010[49]	Groenveld, 2011[50] Smit, 2011[51] Van Gelder, 2006[52]*
RASTA (Randomized Ablation Strategies for the Treatment of Persistent Atrial Fibrillation)	Dixit, 2012[53]	None
SAFE-T (Sotalol Amiodarone Atrial Fibrillation Efficacy Trial)	Singh, 2005[54]	Atwood, 2007[55] Batcher, 2007[56] Singh, 2009[57] Singh, 2003[58]*
SAFIR (Surgery for atrial fibrillation)	Chevalier, 2009[59]	None
STAF (Strategies of Treatment of Atrial Fibrillation)	Carlsson, 2003[60]	Carlsson, 2003[61]
STAR AF (Substrate and Trigger Ablation for Reduction of Atrial Fibrillation)	Verma, 2010[62]	None
SWEDMAF (SWEDish Multicentre Atrial Fibrillation study)	Blomstrom-Lundqvist, 2007[63]	None
ThermoCool AF (ThermoCool Atrial Fibrillation)	Wilber, 2010[64]	Reynolds, 2010[65]

Study Designation	Primary Abstracted Article	Companion Articles*
VEPARAF (VErapamil Plus Antiarrhythmic drugs Reduce Atrial Fibrillation recurrences after an electrical Cardioversion)	De Simone, 2003[66]	None
VERDICT (The Verapamil versus Digoxin Cardioversion Trial)	Van Noord, 2001[67]	None
VERDICT (Verapamil Versus Digoxin and Acute Versus Routine Serial Cardioversion Trial)	Hemels, 2006[68]	None
None	Abreu Filho, 2005[69]	None
None	Akpinar, 2003[70]	None
None	Alatawi, 2005[71]	None
None	Albrecht, 2009[72]	None
None	Alp, 2000[73]	None
None	Ambler, 2006[74]	None
None	Arentz, 2007[75]	None
None	Balla, 2011[76]	None
None	Bellandi, 2001[77]	None
None	Bertaglia, 2002[78]	None
None	Bittner, 2011[79]	None
None	Boodhoo, 2007[80]	None
None	Boos, 2003[81]	None
None	Brazdzionyte, 2006[82]	None
None	Bulava, 2010[83]	None
None	Calo, 2006[84]	None
None	Capucci, 2000[85]	None
None	Chen, 2011[86]	None
None	Corrado, 2010[87]	None
None	de Lima, 2004[88]	None
None	De Simone, 2002[89]	None
None	Deisenhofer, 2009[90]	None
None	Delle Karth, 2001[91]	None
None	Demircan, 2005[92]	None
None	Deneke, 2002[93]	None
None	Di Biase, 2009[94]	None

Study Designation	Primary Abstracted Article	Companion Articles*
None	Dixit, 2006[95]	None
None	Dixit, 2008[96]	None
None	Doukas, 2005[97]	None
None	Elayi, 2008[98]	None
None	Fassini, 2005[99]	None
None	Fiala, 2008[100]	None
None	Forleo, 2009[101]	None
None	Fragakis, 2009[102]	None
None	Gaita, 2008[103]	None
None	Gavin, 2011[104]	None
None	Hassan, 2007[105]	None
None	Haissaguerre, 2004[106]	None
None	Hofmann, 2006[107]	None
None	Holming, 2001[108]	None
None	Jessurun, 2003[109]	None
None	Joglar, 2000[110]	None
None	Joseph, 2000[111]	None
None	Kafkas, 2007[112]	None
None	Kanoupakis, 2004[113]	None
None	Katritsis, 2004[114]	None
None	Katritsis, 2003[115]	None
None	Kawabata, 2007[116]	None
None	Khand, 2003[117]	None
None	Khargi, 2001[118]	None
None	Khaykin, 2003[119]	None
None	Khaykin, 2009[120]	None
None	Kim, 2010[121]	None
None	Kirchhof, 2002[122]	None
None	Kirkutis, 2004[123]	None
None	Kochiadakis, 2004[124]	None
None	Kochiadakis, 2004[125]	None
None	Kochiadakis, 2000[126]	None
None	Kochiadakis, 2001[127]	None
None	Kochiadakis, 2000[128]	None
None	Korantzopoulos, 2006[129]	None
None	Krittayaphong, 2003[130]	None
None	Lee, 2000[131]	None
None	Levy, 2001[132]	None
None	Lindholm, 2004[133]	None
None	Liu, 2010[134]	None

Study Designation	Primary Abstracted Article	Companion Articles*
None	Liu, 2006[135]	None
None	MacDonald, 2011[136]	None
None	Manios, 2003[137]	None
None	Marinsek, 2003[138]	None
None	Mazzocca, 2006[139]	None
None	Mortensen, 2008[140]	None
None	Nergardh, 2007[141]	None
None	Nilsson, 2006[142]	None
None	Okcun, 2004[143]	None
None	Oral, 2004[144]	None
None	Oral, 2005[145]	None
None	Oral, 2006[146]	None
None	Oral, 2009[147]	None
None	Page, 2002[148]	None
None	Petrac, 2005[149]	None
None	Pires, 2010[150]	None
None	Plewan, 2001[151]	None
None	Pontoppidan, 2009[152]	None
None	Rashba, 2002[153]	None
None	Rashba, 2004[154]	None
None	Redfearn, 2006[155]	None
None	Ricard, 2001[156]	None
None	Scholten, 2003[157]	None
None	Schuetz, 2003[158]	None
None	Sheikh, 2006[159]	None
None	Siaplaouras, 2005[160]	None
None	Siaplaouras, 2004[161]	None
None	Simpson, 2001[162]	None
None	Siu, 2009[163]	None
None	Srivastava, 2008[164]	None
None	Tamborero, 2009[165]	None
None	Thomas, 2004[166]	None
None	Turco, 2007[167]	None
None	Van Breugel, 2010[168]	None
None	Vijayalakshmi, 2006[169]	None
None	Villani, 2000[170]	None
None	von Oppell, 2009[171]	None
None	Wang, 2009[172]	None
None	Wattanasuwan, 2001[173]	None
None	Wazni, 2003[174]	None

Study Designation	Primary Abstracted Article	Companion Articles*
None	Wazni, 2005[175]	None
None	Willems, 2006[176]	None
None	Yildiz, 2008[177]	None
None	Knaut, 2010[178]	None
None	Karch, 2005[179]	None

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Appendix F. Study Characteristics Tables

The tables in this appendix summarize basic study characteristics for each Key Question (KQ). A comprehensive list of references is provided at the end of the appendix.

Appendix Table F-1. Study characteristics—KQ 1

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Capucci, 2000[1]	RCT; Inpatient; Europe; Fair	Total N: 61 Arm 1: Amiodarone (31) Arm 2: Diltiazem (30)	Arm 1: 59 (SD 15) Arm 2: 58 (SD 10)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	Arm 1: 16.3 wk (SD 6 wk) Arm 2: 18 wk (5 wk)	None	NR	Arm 1: 49 (SD 8) Arm 2: 50 (SD 5)	NR	Restoration of sinus rhythm, Recurrence of AF, Control of ventricular rate
Holming, 2001[2]	RCT; Outpatient; Europe; Fair	Total N: 31 Arm 1: Sotalol (NR) Arm 2: Digoxin (NR) Arm 3: Sotalol + Digoxin(NR)	Total: 68	NR	NR	None	NR	NR	NR	Control of ventricular rate, Quality of life/functional status

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Delle Karth, 2001[3]	RCT; Inpatient; Europe; Good	Total N: 60 Arm 1: Diltiazem, 24 hours (20) Arm 2: Amiodarone, 15 minutes (20) Arm 3: Amiodarone, 24 hours (20)	Total: 67 (SD 10) Arm 1: 64.8 (SD 10) Arm 2: 67.8 (SD 9) Arm 3: 71.2 (SD 9)	NR	NR	None	Total: 22 Arm 1: 25, Arm 2: 20 Arm 3: 20	NR	Total: 6.6 Arm 1: 10 Arm 2: 10 Arm 3: 0	Control of ventricular rate
Kochiadakis, 2001[4]	RCT; Outpatient; Europe; Good	Total N: 23 Arm 1: Placebo (NR) Arm 2: Metoprolol (NR) Arm 3: Sotalol (NR)	Total: 63 (SD 8)	NR	NR	None	NR	NR	NR	Control of ventricular rate, Control of AF symptoms
Simpson, 2001[5]	RCT; ER; Canada; Fair	Total N: 40 Arm 1: Clonidine (12) Arm 2: Digoxin (15) Arm 3: Verapamil (13)	Arm 1: 69 (SD 19) Arm 2: 61 (SD 14) Arm 3: 61 (SD 12)	Total: 0, 20, 0 Arm 1: 0, 16.7, 0 Arm 2: 0, 20, 0 Arm 3: 0, 23.07, 0	NR	None	NR	NR	NR	Control of ventricular rate, Restoration of sinus rhythm

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Wattanasu-wan, 2001[6]	RCT; Inpatient, ER; US; Fair	Total N: 52 Arm 1: Diltiazem + digoxin (26) Arm 2: Digoxin (26)	Arm 1: 61 (SD 21) Arm 2: 64 (SD 18)	Total: 0, 83, 0 Arm 1: 0, 81, 0 Arm 2: 0, 85, 0	NR	None	Total: 25 Arm 1: 23 Arm 2: 27	Arm 1: 54 (SD 14) Arm 2: 47 (SD 16)	Total: 10 Arm 1: 8 Arm 2: 11	Control of ventricular rate
Khand, 2003[7]	RCT; Outpatient; UK; Good	Total N: 47 Arm 1: Carvedilol (24) Arm 2: Digoxin (23)	Arm 1: 68.6 (SD 9.4) Arm 2: 68.4 (SD 9.8)	Total: 0, 0, 100 Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	Arm 1: 152.8 wk (SD 204) Arm 2: 109.2 wk (SD 123.4)	None	NR	Arm 1: 23.7 (SD 10.4) Arm 2: 24.7 (SD 9.5)	NR	Control of AF symptoms, Heart failure symptoms
Lindholm, 2004[8]	RCT; Outpatient; Europe; Fair	Total N: 100 Arm 1: Digoxin (50) Arm 2: Verapamil (50)	Arm 1: 72 (SD 7) Arm 2: 66 (SD 10)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	Total: Mean 8.4 mo Arm 1: 7.5 mo (SD 6 mo) Arm 2: 10.7 mo (SD 8.5 mo)	None	NR	Total: 86 Arm 1: 42 Arm 2: 44	NR	Control of ventricular rate, Maintenance of sinus rhythm, Restoration of sinus rhythm

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Thomas, 2004[9]	RCT; ER; Australia/NZ; Fair	Total N: 140 Amiodarone (52) Sotalol (45) Digoxin (43)	Amiodarone: 54.3 (SD 15.9) Sotalol: 57.7 (SD 15.9) Digoxin: 55.5 (SD 16.5)	NR	NR	None	NR	NR	Total: 15 Amiodarone: 7 Sotalol: 4 Digoxin: 4	Restoration of sinus rhythm, Control of ventricular rate
Demircan, 2005[10]	RCT; ER; Europe; Good	Total N: 40 Diltiazem (20) Metoprolol (20)	Total: 62.1 (SD 12.9) Diltiazem: 60.2 Metoprolol: 64	NR	NR	None	NR	NR	NR	Control of ventricular rate
Hemels, 2006[11] (VERDICT) Van Noord, 2001[12]	RCT; NR; Europe (Netherlands); Fair	Total N: 144 Arm 1: Electrical cardioversion (early or routine), Digoxin (70) Arm 2: Electrical cardioversion (early or routine), Verapamil (74)	Arm 1: 65 (SD 11) Arm 2: 65 (SD 8)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	Arm 1: 140 days Arm 2: 117 days	None	Arm 1: 7 Arm 2: 5	NR	Arm 1: 19 Arm 2: 12	Control of ventricular rate, Restoration of sinus rhythm (conversion) Recurrence of AF, Maintenance of sinus rhythm, Quality of life/functional status

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Hofmann, 2006[13]	RCT; Inpatient; Europe; Good	Total N: 100 Arm 1: Amiodarone (50) Arm 2: Digoxin (50)	Arm 1: 68.3 (SD 13) Arm 2: 69.3 (SD 13)	Total: 0, 11, 12 Arm 1: 0, 12, 10 Arm 2: 0, 10, 14	NR	None	Total: 12 Arm 1: 16 Arm 2: 8	Arm 1: 55.2 (SD 19) Arm 2: 54.3 (SD 14)	NR	Control of ventricular rate, Restoration of sinus rhythm
Tsuneda, 2006[14] (QOLAF)	RCT; Outpatient; Asia; Fair	Total N: 29 Arm 1: Beta blockers (19) Arm 2: Verapamil (22)	Total: 67 (SD 8) Arm 1: 68.6 (SD 8.4) Arm 2: 65.5 (SD 7.7)	Arm 1: 100, 0, 0 Arm 2: 100, 0, 0	Arm 1: 91.8 mo (SD 34.5 mo) Arm 2: 103.5 mo (SD 116.5 mo)	None	Arm 1: 10.53 Arm 2: 13.64	NR	NR	Quality of life/functional status
Siu, 2009[15]	RCT; ER; Asia; Good	Total N: 150 Arm 1: Diltiazem (50) Arm 2: Digoxin (50) Arm 3: Amiodarone (50)	Total: 71.5 (SD 11.8) Arm 1: 70.6 (SD 12.4) Arm 2: 71.0 (SD 13.1) Arm 3: 73.0 (SD 9.7)	Total: 0, 100, 0 Arm 1: 0, 100, 0 Arm 2: 0, 100, 0 Arm 3: 0, 100, 0	NR	None	NR	Arm 1: 63.8 (SD 12.2) Arm 2: 66 (SD 11) Arm 3: 63.2 (SD 11.9)	NR	Control of AF symptoms, Control of ventricular rate, Restoration of sinus rhythm, AF hospitalizations

Abbreviations [complete list to be provided in final report]: AF = atrial fibrillation; CAD = coronary artery disease; CV = cardiovascular; ER = emergency room; HF = heart failure; LVEF = left ventricular ejection fraction; mo = month(s); N = number of participants; NR = not reported; RCT = randomized controlled trial; SD = standard deviation; wk = week(s); yr = year(s)

Appendix Table F-2. Study characteristics—KQ 2

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Van Gelder, 2006[16] (AFFIRM, RACE)	Retrospective cohort; Outpatient; NR Fair	Total N: 1091 [a] Arm 1: Strict (874) Arm 2: Lenient (217)	Arm 1: 69.3 (9.1) Arm 2: 68.1 (9.2)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	NR	None	Arm 1: 8 Arm 2: 52	NR	Arm 1: 37 Arm 2: 28	Composite outcome (all-cause mortality, MI, CV hospitalizations);CV hospitalizations; MI; all-cause mortality
Groenveld, 2009[17] (RACE)	Retrospective cohort; Outpatient; Europe; Good	Total N: 214 Arm 1: Strict (75) Arm 2: Lenient (139)	Arm 1: 70 (8) Arm 2: 68 (10)	Arm 1: 100, 0, 0 Arm 2: 100, 0, 0	Arm 1: Median 662 days (IQR, 66 to 14,909) Arm 2: Median 408 days (IQR, 14 to 4219)	None	Arm 1: 45 Arm 2: 50	NR	Arm 1: 27 Arm 2: 27	Composite outcome (cardiac mortality; heart failure symptoms; mixed embolic events, including stroke; bleeding events, including hemorrhagic stroke; bradyarrythmia; other adverse drug reaction); cardiac mortality; heart failure symptoms; mixed embolic events, including stroke; bleeding events; quality of life
Van Gelder, 2010[18] (RACE II) Groenveld 2011[19] (RACE II substudy)	RCT; Outpatient; Europe; Good	Total N: 614 Arm 1: Strict (303) Arm 2: Lenient (311)	Total: 68 (8) Arm 1: 67 (9) Arm 2: 69 (8)	Arm 1: 100, 0, 0 Arm 2: 100, 0, 0	Arm 1: Median 16 mo (IQR, 6 to 54) Arm 2: Median 20 mo (IQR, 6 to 64)	None	Total: 34.9 Arm 1: 36 Arm 2: 33.8	Total: 52 (12) Arm 1: 52 (12) Arm 2: 52 (11)	Total: 18.1 Arm 1: 14.5 Arm 2: 21.5	Composite outcome (cardiac mortality; CV hospitalizations; stroke; other embolic events, excluding stroke; bleeding events, including hemorrhagic stroke; bradyarrythmia; proarrhythmias; other adverse drug reactions); cardiac mortality; heart failure symptoms; stroke; other embolic events, including stroke; bleeding events; all-cause mortality; control of AF symptoms; quality of life

[a]Includes patients from Groenveld, 2009.[17]

Abbreviations: AF = atrial fibrillation; AFFIRM = Atrial Fibrillation Follow-Up Investigation of Rhythm Management; CAD = coronary artery disease; CV = cardiovascular; IQR = interquartile range; LVEF = left ventricular ejection fraction; MI = myocardial infarction; mo = month(s); N = number of patients; NR = not reported; RACE(-II) = Rate Control Efficacy in Permanent Atrial Fibrillation(-II); RCT = randomized controlled trial; SD = standard deviation

Appendix Table F-3. Study characteristics—KQ 3

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Levy, 2001[20]	RCT; Outpatient; UK; Good	Total N: 36 Arm 1: VVIR pacing + rate-control medications (18) Arm 2: VVIR pacing + His-bundle ablation (18)	Total: 69 (SD 7) Arm 1: 69 (SD 7) Arm 2: 68 (SD8)	Arm 1: 100, 0, 0 Arm 2: 100, 0, 0	Arm 1: 3.5 years (SD 3.8) Arm 2: 3.8 years (SD 4)	None	NR	Arm 1: 67 (SD 9) Arm 2: 61 (SD 9)	NR	Control of ventricular heart rate (24-hour Holter monitor), Exercise duration by treadmill testing, Quality of life/functional status
Weera-sooriya, 2003[21] (AIRCRAFT = Australian Intervention Randomized Control of Rate in Atrial Fibrillation Trial) Lim, 2007[22]	RCT; NR; Australia/ NZ; Fair	Total N: 99 Arm 1: Rate-control medications (50) Arm 2: AVN ablation + VVIR pacemaker (49)	Total: 68 (SD 8.7) Arm 1: 67.9 (SD 9) Arm 2: 68 (SD 8.5)	Arm 1: 100, 0, 0 Arm 2: 100, 0, 0	Total: 68 mo (SD 104) Arm 1: 78 mo (SD 131) Arm 2: 58 (SD 66)	None	NR	NR	Total: 40 Arm 1: 38 Arm 2: 43	All-cause mortality, Myocardial infarction, Control of AF symptoms, Control of ventricular rate, Quality of life/functional status, Exercise duration (by treadmill test)
Kirkutis, 2004[23]	RCT; NR; NR; Poor	Total N: 76 Arm 1: Amiodarone (38) Arm 2: AVN ablation + His bundle pacemaker (38)	Total: 62 Min age: 45 Max age: 82	100% “resistant chronic AF”	NR	None	NR	NR	NR	Control of ventricular rate

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Petrac, 2005[24]	RCT; Outpatient; Europe; Good	Total N: 102 Arm 1: AVN ablation + VVIR pacemaker (52) Arm 2: AVN ablation + DDDR pacemaker + antiarrhythmic medication (50)	Arm 1: 62 (SD 10) Arm 2: 60 (SD 11)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	NR	None	Arm 1: 23.1% Arm 2: 12%	NR	Arm 1: 23.1% Arm 2: 16.0%	Cardiac mortality, Stroke, All-cause mortality, CV hospitalizations, Recurrence of AF, Heart failure symptoms, Myocardial ischemia, Composite outcome (cardiac mortality, stroke)
Lee, 2000[25]	RCT; NR; Asia (Taiwan); Fair	Total N: 40 Arm 1: AF ablation by PVI (transcatheter, anterior) (18) Arm 2: AF ablation by PVI (transcatheter, posterior) (22)	Arm 1: 67 (SD 8) Arm 2: 66 (SD 11)	Arm 1: 0, 50, 0 Arm 2: 0, 45, 0	Arm 1: 4.9 yr (SD 1.6) Arm 2: 5.2 yr (SD 1.8)	None	NR	Arm 1: 48 (SD 7) Arm 2: 46 (SD 9)	Arm 1: 6 Arm 2: 14	Restoration of sinus rhythm, Control of ventricular rate

Abbreviations [complete list to be provided in final report]: AF = atrial fibrillation; CAD = coronary artery disease; CV = cardiovascular; HF = heart failure; LVEF = left ventricular ejection fraction; mo = month(s); N = number of participants; NR = not reported; RCT = randomized controlled trial; SD = standard deviation; wk = week(s); yr = year(s)

Appendix Table F-4. Study characteristics—KQ 4

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Alp, 2000[26]	RCT; NR; UK; Fair	Total N: 59 Arm 1: AL/AP (30) Arm 2: AP/AL (29)	Arm 1: 67.8 (SD 8.1) Arm 2: 66.8 (SD 7.9)	Arm 1: 0, 0, 30 N Arm 2: 0, 0, 29 N	Arm 1: 23 wk Arm 2: 31 wk	None	NR	Arm 1: 52 (SD 17) Arm 2: 50 (SD 12)	Arm 1: 6 N Arm 2: 3 N	Restoration of sinus rhythm (conversion)
Capucci, 2000[1]	RCT; Inpatient; Europe; Fair	Total N: 61 Arm 1: Amiodarone (31) Arm 2: Digoxin (30)	Arm 1: 59 (SD 15) Arm 2: 58 (SD 10)	Arm 1: 0, 0, 31 N Arm 2: 0, 0, 30 N	Arm 1: 16.3 wk (SD 6) Arm 2: 18 wk (SD 5)	None	NR	Arm 1: 49 (SD 8) Arm 2: 50 (SD 5)	Arm 1: 4 N Arm 2: 5 N	Restoration of sinus rhythm (conversion), Recurrence of AF, Control of ventricular rate
Joglar, 2000[27]	RCT; Outpatient; U.S. ; Good	Total N: 64 Arm 1: DCC 100 (NR) Arm 2: DCC 200 (NR) Arm 3: DCC 360 (NR)	Total: 62 (SD 11)	Total: 0, 0, 100	NR	None	Total: 14 N	NR	NR	Restoration of sinus rhythm (conversion)
Joseph, 2000[28]	RCT; ER; Australia/N.Z. ; Fair	Total N: 115 Arm 1: Digoxin (36) Arm 2: Amiodarone (39) Arm 3: Sotalol (40)	Arm 1: 64.9 (SE 2.0) Arm 2: 61.3 (SE 2.6) Arm 3: 62.8 (SE 2.4)	NR	NR	None	NR	NR	Arm 1: 3 N Arm 2: 8 N Arm 3: 7 N	Restoration of sinus rhythm (conversion)

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Villani, 2000[29]	RCT; Outpatient, ER; Europe; Fair	Total N: 120 Arm 1: Diltiazem (46) Arm 2: Amiodarone (44) Arm 3: Digoxin (30)	Arm 1: 59 (SD 3) Arm 2: 58 (SD 7) Arm 3: 56 (SD 5)	NR	Arm 1: 18.0 wk (SD 5(Arm 2: 16.3 wk (SD 6) Arm 3: 16 wk (SD 3)	None	NR	Arm 1: 40 (SD 5) Arm 2: 49 (SD 8) Arm 3: 52 (SD 5)	Arm 1: 5 N Arm 2: 4 N Arm 3: 1 N	Restoration of sinus rhythm (conversion), Recurrence of AF
Ricard, 2001[30]	RCT; NR; Europe; Fair	Total N: 57 Arm 1: Monophasic (30) Arm 2: Biphasic (27)	Arm 1: 69 (SD 10) Arm 2: 66 (SD 12)	Arm 1: 0, 2 N, 0 Arm 2: 0, 2 N, 0	NR	None	NR	Arm 1: 0.58 (SD 0.10) Arm 2: 0.56 (SD 0.11)	Arm 1: 6 N Arm 2: 2 N	Restoration of sinus rhythm (conversion)
Van Noord, 2001[12] (VERDICT)	RCT; NR; Europe; Poor	Total N: 97 Arm 1: Verapamil (48) Arm 2: Digoxin (49)	Arm 1: 66 (SD 13) Arm 2: 66 (SD 11)	NR	Arm 1: Median 18 days Arm 2: Median 21 days	None	NR	NR	Arm 1: 12 N Arm 2: 8 N	Restoration of sinus rhythm (conversion), Recurrence of AF
De Simone, 2002[31]	RCT; Inpatient; Europe; Poor	Total N: 88 Arm 1: Verapamil + DCC (43) Arm 2: DCC (45)	Arm 1: 60 (SD 11) Arm 2: 60 (SD 12)	NR	Arm 1: 94 days (SD 79) Arm 2: 87 days (SD 65)	None	NR	Arm 1: 50 (SD 8.1) Arm 2: 50 (SD 7)	Arm 1: 6 N Arm 2: 7 N	Recurrence of AF
Kirchhof, 2002[32]	RCT; Outpatient; Europe; Good	Total N: 108 Arm 1: AP (52) Arm 2: AL (56)	Arm 1: 62 (SD 2) Arm 2: 58 (SD 2)	Arm 1: 0, 0, 52 N Arm 2: 0, 0, 56 N	Arm 1: Median 5 (IQR 0.1-120) Arm 2: Median 4 (IQR 0.1-120	None	Arm 1: 7 N Arm 2: 13 N	NR	Arm 1: 13 N Arm 2: 14 N	Restoration of sinus rhythm (conversion)

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Page, 2002[33]	RCT; NR; U.S., Europe; Good	Total N: 203 Arm 1: Monophasic (107) Arm 2: Biphasic (96)	Arm 1: 65 (SD 13) Arm 2: 65 (SD 14)	NR	NR	None	Arm 1: 31 Arm 2: 31	NR	Arm 1: 19 Arm 2:24	Restoration of sinus rhythm (conversion)
Rashba, 2002[34]	RCT; NR; U.S. ; Fair	Total N: 110 Arm 1: Standard (55) Arm 2: Reverse (55)	NR	NR	NR	None	NR	NR	NR	Restoration of sinus rhythm (conversion)
Boos, 2003[35]	RCT; NR; UK; Fair	Total N: 107 Arm 1: Initial 360 DCC (50) Arm 2: Initial 200 DCC (57)	Arm 1: 64.4 (SD 10.5) Arm 2: 67.7 (SD 9.6)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	NR	None	NR	NR	Arm 1: 24 Arm 2: 25	Restoration of sinus rhythm (conversion)
Khaykin, 2003[36]	RCT; Inpatient; Canada; Good	Total N: 56 Arm 1: Monophasic (28) Arm 2: Biphasic (28)	Arm 1: 59.7 (SD 10.8) Arm 2: 58.3 (SD 14.6)	NR	Arm 1: 26 wk (SD 19) Arm 2: 24 wk (SD 18)	Previously failed a rate- or rhythm-control pharmacological therapy strategy	NR	NR	NR	Restoration of sinus rhythm (conversion)
Manios, 2003[37]	RCT; NR; Europe; Fair	Total N: 106 Arm 1: Diltiazem (35) Arm 2: Amiodarone (34) Arm 3: Placebo (37)	Arm 1: 64 (SD 8) Arm 2: 66 (SD 7) Arm 3: 62 (SD 11)	NR	Arm 1: 37 mo (SD 35) Arm 2: 35 mo (SD 29) Arm 3: 32 mo (SD 34)	None	NR	Arm 1: 61 (SD 8.6) Arm 2: 59 (SD 6.3) Arm 3: 62 (SD 6.6)	Arm 1: 4 N Arm 2: 4 N Arm 3: 2 N	Restoration of sinus rhythm (conversion)

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Marinsek, 2003[38]	RCT; Outpatient Europe (Slovenia) ; Fair	Total N: 83 Arm 1: Monophasic (40) Arm 2: Biphasic (43)	Arm 1: 67 (SD 8) Arm 2: 69 (SD 6)	NR	NR	None	NR	Arm 1: 57 (SD 11) Arm 2: 56 (SD 11)	Arm 1: 8 Arm 2: 14	Maintenance of sinus rhythm
Scholten, 2003[39]	RCT; NR; Europe; Fair	Total N: 227 Arm 1: Monophasic (109) Arm 2: Biphasic (118)	Arm 1: 59.9 (SD 14.0) Arm 2: 59.6 (SD 12.4)	NR	Arm 1: Median 41 days Arm 2: Median 20.5	None	Arm 1: 12 N Arm 2: 11 N	NR	Arm 1: 6 N Arm 2: 5 N	Restoration of sinus rhythm (conversion)
Kanoupakis, 2004[40]	RCT; Outpatient; Europe; Fair	Total N: 142 Arm 1: Carvedilol (48) Arm 2: Amiodarone (48) Arm 3: Control (46)	Arm 1: 66 (SD 9) Arm 2: 64 (SD 8) Arm 3: 61 (SD 10)	Arm 1: 0, 0, 48 N Arm 2: 0, 0, 48 N Arm 3: 0, 0, 46 N	Arm 1: 10 mo (SD 8) Arm 2: 10 mo (SD 12) Arm 3: 13 mo (SD 17)	None	NR	Arm 1: 60 (SD 7.3) Arm 2: 58 (SD 5.6) Arm 3: 57 (SD 9)	Arm 1: 6 N Arm 2: 5 N Arm 3: 4 N	Restoration of sinus rhythm (conversion), Recurrence of AF
Lindholm, 2004[8]	RCT; Outpatient; Europe; Fair	Total N: 100 Arm 1: Digoxin (50) Arm 2: Verapamil (50)	Arm 1: 72 (SD 7) Arm 2: 66 (SD 10)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	Total: 8.4 mo Arm 1: 7.5 mo (SD 6) Arm 2: 10.7 mo (SD 8.5)	None	NR	NR	NR	Control of ventricular rate, Maintenance of sinus rhythm, Restoration of sinus rhythm (conversion)

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Rashba, 2004[41]	RCT; NR; U.S. ; Fair	Total N: 120 Arm 1: 20 DCC (30) Arm 2: 50 DCC (30) 100 DCC (30) Arm 3: 200 DCC (30)	Arm 1: 65 (SD 12) Arm 2: 69 (SD 13) Arm 3: 65 (SD 12) Arm 4: 63 (SD 10)	NR	Arm 1: 71 days (SD 80) Arm 2: 86 (SD 100) Arm 3: 136 days (SD 177) Arm 4: 176 days (SD 371)	None	NR	Arm 1: 50 (SD 16) Arm 2: 41 (SD 16) Arm 3: 50 (SD 13) Arm 4: 50 (SD 15)	Arm 1: 33 Arm 2: 30 Arm 3: 33 Arm 4: 27	Restoration of sinus rhythm (conversion)
Siaplaouras, 2004[42]	RCT; NR; Europe; Fair	Total N: 216 Arm 1: Biphasic (NR) Arm 2: Monophasic (NR)	Arm 1: 65 (SD 10) Arm 2: 66 (SD 10)	NR	Arm 1: 3.2 mo (SD 4) Arm 2: 4.1 mo (SD 10)	None	NR	Arm 1: 62 (SD 15) Arm 2: 59 (SD 13)	Arm 1: 17 Arm 2: 20	Recurrence of AF, Restoration of sinus rhythm (conversion)
Thomas, 2004[9]	RCT; ER; Australia/N.Z. ; Fair	Total N: 140 Arm 1: Amiodarone (52) Arm 2: Sotalol (45) Arm 3: Digoxin (43)	Arm 1: 54.3 (SD 15.9) Arm 2: 57.7 (SD 15.9) Arm 3: 55.5 (SD 16.5)	NR	NR	None	NR	NR	Total: 15 Arm 1: 7 Arm 2: 4 Arm 3: 4	Restoration of sinus rhythm (conversion), Control of ventricular rate

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Alatawi, 2005[43]	RCT; Inpatient; U.S. ; Fair	Total N: 141 Arm 1: Truncated (70) Arm 2: Rectilinear (71)	Arm 1: 65.3 (SD 14.5) Arm 2: 67.6 (SD 12.9)	NR	NR	None	NR	Arm 1: 53.9 (SD 12.7) Arm 2: 54.0 (SD 13.0)	Arm 1: 20 Arm 2: 32	Restoration of sinus rhythm (conversion)
Kirchhof, 2005[44]	RCT; Outpatient; Europe; Good	Total N: 201 Arm 1: Steel (104) Arm 2: Adhesive (97)	Arm 1: 63 (SD 1) Arm 2: 63 (SD 1)	NR	Arm 1: 8.1 mo (SD 2) Arm 2: 4.5 mo (SD 0.2)	None	NR	NR	Arm 1: 36 N Arm 2: 25 N	Restoration of sinus rhythm (conversion)
Korantzo-poulos, 2005[45]	RCT; Inpatient; Europe (Greece); Good	Total N: 100 Arm 1: Ibutilide (51) Arm 2: Propafenone + ibutilide (49)	Total: 65 (SD 10) Arm 1: 66 (SD 9) Arm 2: 65 (SD 11)	Total: 0, 0, 100 Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	Total: 99 days (SD 92) Arm 1: 98 days (SD 83) Arm 2: 99 days (SD 100)	None	NR	Arm 1: 58 (SD 6) Arm 2: 59 (SD 10)	Arm 1: 19 Arm 2: 16	Restoration of sinus rhythm (conversion)
Siaplaouras, 2005[46]	RCT; NR; Europe; Fair	Total N: 123 Arm 1: AP (60) Arm 2: AL (63)	Arm 1: 67 (SD 10) Arm 2: 66 (SD 10)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	Arm 1: 3.0 mo (SD 5) Arm 2: 3.8 mo (SD 9)	None	NR	Arm 1: 60 (SD 13) Arm 2: 59 (SD 13)	Arm 1: 10 N Arm 2: 16 N	Restoration of sinus rhythm (conversion), Recurrence of AF

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Singh, 2005[47] (SAFE-T) Atwood, 2007[48] Batcher, 2007[49] Singh, 2009 [50]	RCT; Outpatient; US; Good	Total N: 665 Arm 1: Amiodarone (267) Arm 2: Sotalol (261) Arm 3: Placebo (137)	Arm 1: 67.1 (SD 9.4) Arm 2: 66.8 (SD 8.9) Arm 3: 67.7 (SD 9.8)	NR	NR	None	Arm 1: 67 N Arm 2: 72 N Arm 3: 33 N	Arm 1: 0.505 (SD 0.124) Arm 2: 0.515 (SD 0.119) Arm 3: 0.494 (SD 0.127)	Arm 1: 71 N Arm 2: 66 N Arm 3: 31 N	Restoration of sinus rhythm (conversion) Stroke All-cause mortality Recurrence of AF
Ambler, 2006[51]	RCT; NR; UK; Fair	Total N: 128 Arm 1: Monophasic (NR) Arm 2: Biphasic (NR)	Total: Median 70 (NR) Min Age: 22 Max Age: 87	NR	NR	None	NR	NR	NR	Restoration of sinus rhythm (conversion)
Brazdzionyte, 2006[52]	RCT; NR; Europe; Fair	Total N: 103 Arm 1: AL (55) Arm 2: AP (48)	Arm 1: 63.84 (SD 11.67) Arm 2: 62.31 (SD 10.37)	Total: 0, 0, 103 N Arm 1: 0, 0, 55 N Arm 2: 0, 0, 48 N	NR	None	NR	Arm 1: 48.6 (SD 9.45) Arm 2: 48.8 (SD 6.08)	Arm 1: 47.3 Arm 2: 33.3	Restoration of sinus rhythm (conversion)
Hemels, 2006[11] (VERDICT)	RCT; NR; Europe (Netherlands) ; Fair	Total N: 144 Arm 1: Digoxin (70) Arm 2: Verapamil (74)	Arm 1: 65 (SD 11) Arm 2: 65 (SD 8)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	Arm 1: 140 days Arm 2: 117 days	None	Arm 1: 7 Arm 2: 5	NR	Arm 1: 19 Arm 2: 12	Control of ventricular rate, Restoration of sinus rhythm (conversion) Recurrence of AF, Maintenance of sinus rhythm, Quality of life/ Functional status

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Hofmann, 2006[13]	RCT; Inpatient; Europe; Good	Total N: 100 Arm 1: Amiodarone (50) Arm 2: Digoxin (50)	Arm 1: 68.3 (SD 13) Arm 2: 69.3 (SD 13)	Total: 0, 11, 12 Arm 1: 0, 12, 10 Arm 2: 0, 10, 14	NR	None	Total: 12 Arm 1: 16 Arm 2: 8	Arm 1: 55.2 (SD 19) Arm 2: 54.3 (SD 14)	NR	Control of ventricular rate, Restoration of sinus rhythm (conversion)
Mazzocca, 2006[53]	RCT; NR; Europe; Fair	Total N: 50 Arm 1: DCC (25) Arm 2: Ibutilide + DCC (25)	Arm 1: 64 (SD 14) Arm 2: 69 (SD 9)	NR	Arm 1: 86 days (SD 79) Arm 2: 84 days (SD 73)	None	NR	Arm 1: 53 (SD 9) Arm 2: 53 (SD 10)	NR	Restoration of sinus rhythm (conversion)
Redfearn, 2006[54]	RCT; NR; UK; Fair	Total N: 23 Arm 1: Verapamil+DCC (9) Arm 2: DCC (14)	Arm 1: 63.9 (SD 13.7) Arm 2:: 69.9 (SD 8.1)	NR	Arm 1: 9.13 mo (SD 3.94) Arm 2:: 11.2 mo (SD 12.9)	None	NR	NR	NR	Maintenance of sinus rhythm
Vijayalakshmi, 2006[55]	RCT; NR; UK; ; Good	Total N: 94 Arm 1: Control (31) Arm 2: Amiodarone (27) Arm 3: Sotalol (36)	Arm 1: 64.8 (SD 9.1) Arm 2: 65.5 (SD 10.5) Arm 3: 62.8 (SD 9.3)	NR	Arm 1: 7 mo (SD 4) Arm 2: 6.6 mo (SD 3.9) Arm 3: 7.3 mo (SD 4.4)	None	Arm 1: 1 N Arm 2: 1 N Arm 3: 1 N	Arm 1: 40 Arm 2: 51 Arm 3: 40	NR	All-cause mortality, Maintenance of sinus rhythm, Restoration of sinus rhythm (conversion)
Boodhoo, 2007[56]	RCT; NR; UK; Fair	Total N: 261 Arm 1: Initial 200J (125) Arm 2: 360 DCC (136)	Arm 1: 70 (SD 10) Arm 2: 72 (SD 10)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	NR	None	Arm 1: 6 Arm 2: 1	Arm 1: 65 Arm 2: 65	Arm 1: 11 Arm 2: 9	Restoration of sinus rhythm (conversion), Maintenance of sinus rhythm, All-cause mortality, Mixed embolic events including stroke

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Hassan, 2007[57]	RCT; ER; U.S. ; Fair	Total N: 50 Arm 1: Diltiazem (24) Arm 2: Esmolol (26)	Arm 1: 62 (SD 15) Arm 2: 65 (SD 15)	Arm 1: 0, 8 N, 0 Arm 2: 0, 11 N, 0	NR	None	NR	Arm 1: 54.5 (SD 14) Arm 2: 50.5 (SD 14)	Arm 1: 4 N Arm 2: 2 N	Restoration of sinus rhythm (conversion), Control of ventricular rate
Kafkas, 2007[58]	RCT; Inpatient; Europe; Fair	Total N: 152 Arm 1: Ibutilide (79) Arm 2: Amiodarone (73)	Arm 1: 62 (SD 16) Arm 2: 64 (SD 18)	NR	NR	None	NR	Arm 1: 53 (SD 6) Arm 2: 52 (SD 8)	Arm 1: 36 N Amiod arone : 38 N	Restoration of sinus rhythm (conversion), Recurrence of AF
Kawabata, 2007[59]	RCT; ER; S. America; Good	Total N: 154 Arm 1: Biphasic (77) Arm 2: Monophasic (77)	Arm 1: 55 (SD 13.5) Arm 2: 60 (SD 13.3)	NR	NR	None	NR	NR	Arm 1: 3 N Arm 2: 10 N	Restoration of sinus rhythm (conversion)
Nergardh, 2007[60]	RCT; NR; Europe (Sweden) ; Good	Total N: 168 Arm 1: Metoprolol + DCC (83) Arm 2: Placebo + DCC (85)	Arm 1: 68.2 (SD 10.1) Arm 2: 66.5 (SD 12.2)	NR	Arm 1: 5.3 mo (SD 2.9) Arm 2: 5.1 mo (SD 2.8)	None	NR	Arm 1: 48.6 (SD 7.9) Arm 2: 49.7 (SD 6.7)	Arm 1: 4 N Arm 2: 3 N	Control of ventricular rate, Maintenance of sinus rhythm, Restoration of sinus rhythm (conversion), All-cause mortality, Stroke

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Glover, 2008[61] (BEST AF)	RCT; Outpatient; UK (N. Ireland) ; Good	Total N: 380 Arm 1: Electrical cardioversion (low energy) (193) Arm 2: Electrical cardioversion (high energy) (187)	Total: 67 (SD 10) Arm 1: 66.8 (SD 9.7) Arm 2: 67.1 (SD 10)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	Total: Median 6.0 mo (IQR 3-11) Arm 1: Median 6.0 mo (IQR 4.0-12.0) Arm 2: Median 6.0 mo (IQR 3.0-9.0)	None	NR	Arm 1: 52 (SD 27) Arm 2: 49 (SD 29)	Arm 1: 34 Arm 2: 27	Restoration of sinus rhythm
Mortensen, 2008[62]	RCT; Inpatient, Outpatient, ER; Europe; Fair	Total N: 95 Arm 1: Biphasic (48) Arm 2: Monophasic (47)	Total: 62 (SD 13) Arm 1: 62 (SD 12) Arm 2: 62 (SD 13)	NR	NR	None	NR	NR	Total: 23.1 Arm 1: 27.0 Arm 2: 19.1	Restoration of sinus rhythm (conversion)
Fragakis, 2009[63]	RCT; Inpatient, Outpatient, ER; Europe; Fair	Total N: 90 Arm 1: Esmolol + ibutilide (44) Arm 2: Ibutilide (46)	Total: 63 (SD 13.5) Arm 1: 63 (SD 11.5) Arm 2: 63 (SD 15)	Arm 1: 0, 80, 0 Arm 2: 0, 75, 0	Arm 1: 16 days (SD 42) Arm 2: 19 days (SD 30)	None	NR	Arm 1: 63 (SD 6) Arm 2: 61 (SD 7)	Arm 1: 11 Arm 2: 9	Restoration of sinus rhythm (conversion)

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Balla, 2011[64]	RCT; ER; Europe; Good	Total N: 160 Arm 1: Flecainide (40) Arm 2: Amiodarone (40) Arm 3: Propafenone (40) Arm 4: Placebo (40)	Arm 1: 57.9 (SD 9.5) Arm 2: 58.9 (SD 10.4) Arm 3: 57.4 (SD 9.8) Arm 4: 58.6 (SD 10.7)	NR	Arm 1: 16.2 hr (SD 9.1) Arm 2: 19.1 hr (SD 12.4) Arm 3: 18.6 hr (SD 4.2) Arm 4: 17.8 hr (SD 13.9)	None	NR	NR	NR	Restoration of sinus rhythm (conversion)

Abbreviations: [To be added in final CER]

Appendix Table F-5. Study characteristics—KQ 5

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Capucci, 2000[1]	RCT; Inpatient; Europe; Fair	Total N: 61 Arm 1: Amiodarone (31) Arm 2: Diltiazem (30)	Arm 1: 59 (SD 15) Arm 2: 58 (SD 10)	Arm 1: 0, 0, 31 N Arm 2: 0, 0, 30 N	Arm 1: 16.3 wk (SD 6) Arm 2: 18 wk (SD 5)	None	NR	Arm 1: 49 (SD 8) Arm 2: 50 (SD 5)	Arm 1: 4 N Arm 2: 5 N	Restoration of sinus rhythm (conversion), Recurrence of AF, Control of ventricular rate
Kochiadakis, 2000[65]	RCT; Outpatient, ED; Europe (Greece); Fair	Total N: 186 Arm 1: Amiodarone (65) Arm 2: Sotalol (61) Arm 3: Placebo (60)	Arm 1: 63.2 (SD 9.0) Arm 2: 62.8 (SD 8.0) Arm 3: 62.8 (SD 9.6)	Arm 1: 0, 65, 35 Arm 2: 0, 64, 36 Arm 3: 0, 67, 33	Arm 1: 9 mo (SD 6) Arm 2: 10 mo (SD 8) Arm 3: 8 mo (SD 7)	None	NR	Arm 1: 54 (SD 12) Arm 2: 52 (SD 13) Arm 3: 55 (SD 12)	NR	Composite outcome (Recurrence of AF, Other adverse drug reaction) Composite outcome (Maintenance of sinus rhythm free of side effects); Death due to arrhythmia;
Kochiadakis, 2000[66]	RCT; ED; Europe (Greece); Fair	Total N: 214 Arm 1: Amiodarone (75) Arm 2: Sotalol (75) Arm 3: Propafenone (64)	Total: 64 (SD 8) Arm 1: 63 (SD 9) Arm 2: 64 (SD 8) Arm 3: 65 (SD 7)	Arm 1: 0, 60, 40 Arm 2: 0, 59, 41 Arm 3: 0, 70, 30	Arm 1: 10 mo (SD 5) Arm 2: 9 mo (SD 7) Arm 3: 9 mo (SD 8)	None	NR	Arm 1: 53 (SD 11) Arm 2: 54 (SD 13) Arm 3: 53 (SD 12)	NR	Recurrence of AF, Composite outcome (Recurrence of AF, Other adverse drug reaction); Composite outcome (Maintenance of sinus rhythm, free from adverse drug reaction)

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Roy, 2000[67] (Canadian Trial of Atrial Fibrillation) Dorian, 2003[68] Dorian, 2002[69] Lumer, 2002[70]	RCT; NR; Canada; Good	Total N: 403 Arm 1: Amiodarone (201) Arm 2: Sotalol or propafenone (202)	Arm 1: 65 (SD 11) Arm 2: 65 (SD 11)	Arm 1: 0, 49, 51 Arm 2: 0, 43, 57	NR	None	NR	NR	Arm 1: 19 Arm 2: 18	All-cause mortality, Death due to arrhythmia, Stroke, AF hospital-izations, Control of AF symptoms, Recurrence of AF, Quality of Life
Bellandi, 2001[71]	RCT; NR; Europe; Fair	Total N: 300 Arm 1: Propafenone (102) Arm 2: Sotalol (106) Arm 3: Placebo (92)	Total: 52 (SD 18) Arm 1: 50 (SD 17) Arm 2: 53 (SD 18) Arm 3: 54 (SD 18)	NR	Arm 1: 27 hrs (SD 9) Arm 2: 28 hrs (SD 11) Arm 3: 29 hrs (SD 11)	None	NR	Arm 1: 55 (SD 4) Arm 2: 56 (SD 3) Arm 3: 55 (SD 3)	Arm 1: 20 N Arm 2: 21 N Arm 3: 18 N	Maintenance of sinus rhythm Recurrence of AF
Khargi, 2001[72]	RCT; Inpatient, Outpatient; Europe; Fair	Total N: 30 Arm 1: Concomitant surgical Maze procedure (15) Arm 2: MV surgery alone (15)	Arm 1: 64.7 Arm 2: 69.7	NR	NR	None	NR	NR	NR	Maintenance of sinus rhythm All-cause mortality

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Plewan, 2001[73]	RCT; NR; Europe; Fair	Total N: 128 Arm 1: Bisoprolol (64) Arm 2: Sotalol (64)	Total: 59 (SD 12) Arm 1: 59 (SD 6) Arm 2: 59 (SD 10)	NR	Total: 8.7 mo (SD 17.5) Arm 1: 7.4 mo (SD 8.3) Arm 2: 10.0 mo (SD 23.1)	None	NR	Total: 41 (SD 5) Arm 1: 41 (SD 7) Arm 2: 42 (SD 5)	Total: 45 N Arm 1: 23 N Arm 2: 22 N	Maintenance of sinus rhythm Recurrence of AF
Bertaglia, 2002[74]	RCT; Inpatient, Outpatient; Europe; Poor	Total N: 90 Arm 1: Electrical cardioversion + AAD (45) Arm 2: AAD (45)	Arm 1: 68 (SD 7.6) Arm 2: 69 (SD 9.5)	Arm 1: 0, 0, 45 N Arm 2: 0, 0, 45 N	Arm 1: 31.6 mo (SD 34.4) Arm 2: 39.9 mo (SD 36.7)	None	NR	Arm 1: 56.8 (SD 9) Arm 2: 56.1 (SD 9.1)	Arm 1: 9 Arm 2: 18	Recurrence of AF
De Simone, 2002[31]	RCT; Inpatient; Europe; Poor	Total N: 88 Verapamil (43) Control (45))	Verapamil, Electrical cardioversion: 60 (SD 11) Electrical cardioversion: 60 (SD 12)	NR	Verapamil, Electrical cardioversion: 94 days (SD 79) Electrical cardioversion: 87 days (SD 65)	None	NR	Verapamil, Electrical cardioversion: 50 (SD 8.1) Electrical cardioversion: 50 (SD 7)	Verapamil, Electrical cardioversion: 6 N Electrical cardioversion: 7 N	Recurrence of AF

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Deneke, 2002[75]	RCT; NR; Europe (Germany); Good	Total N: 30 Arm 1: Concomitant surgical Maze procedure (15) Arm 2: MV surgery alone (15)	Total: 68 Arm 1: 64.7 Arm 2: 69.7	Arm 1: 100, 0, 0 Arm 2: 100, 0, 0	Arm 1: 3.6 yr Arm 2: 3.7 yr	None	NR	Arm 1: 64 (SD 11) Arm 2: 61 (SD 9)	NR	Restoration of sinus rhythm (conversion) Maintenance of sinus rhythm Heart failure symptoms Control of AF symptoms All-cause mortality
Akpinar, 2003[76]	RCT; Inpatient; Europe; Fair	Total N: 67 Arm 1: AF ablation by PVI + surgical Maze procedure (33) Arm 2: MV surgery alone (34)	Arm 1: 53 (SD 10) Arm 2: 50 (SD 8)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	Arm 1: 19.87 mo (SD 10.59) Arm 2: 21.97 mo (SD 13.90)	None	NR	Arm 1: 55.19 (SD 6.34) Arm 2: 55.03 (SD 8.12)	NR	Maintenance of sinus rhythm All-cause mortality Mixed embolic events including stroke Quality of life/ Functional status
Anonymous, 2003[77] (AFFIRM)	RCT; NR; NR; Fair	Total N: 256 Arm 1: Amiodarone (131) Arm 2: Sotalol (125)	Arm 1: 67.9 (SD 8.5) Arm 2: 70.4 (SD 8.9)	NR	NR	None	Arm 1: 15.3 Arm 2: 25.6	NR	Arm 1: 27.5 Arm 2: 20	Recurrence of AF All-cause mortality Cardiac mortality Maintenance of sinus rhythm

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
De Simone, 2003[78] (VEPARAF)	RCT; Inpatient; Europe; Fair	Total N: 324 Arm 1: Amiodarone (82) Arm 2: Flecainide (80) Arm 3: Amiodarone + verapamil (81) Arm 4: Flecainide + verapamil (81)	Arm 1: 62 (SD 10.5) Arm 2: 61.2 (SD 10.7) Arm 3: 63.4 (SD 11.9) Arm 4: 62.5 (SD 11.4)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100 Arm 3: 0, 0, 100 Arm 4: 0, 0, 100	Arm 1: 65.7 days (SD 47.7) Arm 2: 67.8 days (SD 54.6) Arm 3: 63.9 days (SD 48.6) Arm 4: 73.3 days (SD 75.6)	None	NR	Arm 1: 49.1 (SD 6.4) Arm 2: 50.8 (SD 7.2) Arm 3: 50.7 (SD 6.7) Arm 4: 51.3 (SD 7.6)	Arm 1: 11 Arm 2: 14 Arm 3: 10 Arm 4: 6	Recurrence of AF Maintenance of sinus rhythm
Jessurun, 2003[79]	RCT; Inpatient; UK; Fair	Total N: 35 Arm 1: Concomitant surgical Maze procedure (25) Arm 2: MV surgery alone (10)	Arm 1: 64 (SD 12) Arm 2: 64 (SD 9)	Arm 1: 12 N, 13 N, 0 Arm 2: 8 N, 2, N, 0	NR	None	NR	NR	NR	Control of AF symptoms Quality of life/ Functional status Maintenance of sinus rhythm
Katritsis, 2003[80]	RCT; Outpatient; Europe; Good	Total N: 90 Arm 1: Bisoprolol (47) Arm 2: Carvedilol (43)	Arm 1: 66 (9) Arm 2: 65 (10)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	NR	None	NR	NR	Arm 1: 9 Arm 2: 8	Recurrence of AF

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Krittaya-phong, 2003[81]	RCT; Inpatient, Outpatient; Asia; Fair	Total N: 30 Arm 1: Amiodarone (15) Arm 2: AF ablation by PVI (transcatheter), Amiodarone (15)	Arm 1: 48.6 (SD 15.4) Arm 2: 53.3 (SD 10.5)	Arm 1: 0, 60, 40 Arm 2: 0, 73.3, 26.7	Arm 1: 48.2 mo (SD 63.7) Arm 2: 62.9 mo (SD 58.3)	None	NR	Arm 1: 61.8 (SD 8.8) Arm 2: 63.7 (SD 9.5)	Arm 1: 6.7 Arm 2: 6.7	Recurrence of AF Control of AF symptoms Quality of life/ Functional status
Schuetz, 2003[82]	RCT; NR; Europe; Fair	Total N: 43 Arm 1: Concomitant AF ablation (open surgical) (24) Arm 2: MV surgery or CABG alone (19)	Total: 67 (SD 9.4) Arm 1: 64.57 (SD 10.03) Arm 2: 70.21 (SD 7.9)	Arm 1: 24 N, 0, 0 Arm 2: 19 N, 0, 0	Total: 6.2 yr (SD 6.9) Arm 1: 3.8 yr (SD 2.84) Arm 2: 9.21 yr (SD 9.24)	None	NR	Arm 1: 62.8 (SD 13.2) Arm 2: 54.37 (SD 17.08)	NR	Recurrence of AF
Wazni, 2003[83]	RCT; NR; NR; Fair	Total N: 108 Arm 1: CTI ablation after successful PV-LAJ disconnection (49) Arm 2: PV-LAJ disconnection only without CTI ablation (59)	Arm 1: 54 (SD 11) Arm 2: 55 (SD 11)	Arm 1: 13 N, 30 N, 6 N Arm 2: 20 N, 34 N, 5N	Arm 1: 6 yr (SD 4) Arm 2: 5 yr (SD 3)	None	NR	Arm 1: 52 (SD 4) Arm 2: 53 (SD 4)	NR	Recurrence of AF

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
de Lima, 2004[84]	RCT; NR; S. America; Fair	Total N: 30 Arm 1: Comcomitant AF ablation (10) Arm 2: Concomitant surgical Maze procedure (10) Arm 3: MV surgery alone (10)	Total: 51.4 (SD 13.3) Arm 1: 54.1 (SD 9.4) Arm 2: 50.1 (SD 15.3) Arm 3: 50.1 (SD 15.4)	Arm 1: 100, 0, 0 Arm 2: 100, 0, 0 Arm 3: 100, 0, 0	Total: Median 18 mo (IQR 11.8-42.8) Arm 1: Median 23 mo (IQR 15-24) Arm 2: Median 14 mo (IQR 9-63) Arm 3: Median 16.5 mo (IQR 13-24)	None	NR	Total: 0.64 (SD 0.10) Arm 1: 0.64 (SD 0.12) Arm 2: 0.643 (SD 0.075) Arm 3: 0.64 (SD 0.095)	NR	Recurrence of AF All-cause mortality Stroke
Haïssaguerre, 2004[85]	RCT; NR; Europe; Poor	Total N: 70 Arm 1: AF ablation by PVI (transcatheter, CTI) (35) Arm 2: AF ablation by PVI (transcatheter, CTI + mitral isthmus) (25)	Arm 1: 53 (SD 8) Arm 2: 53 (SD 9)	NR	Total: 61 mo (SD 51)	None	NR	Arm 1: 65 (SD 11) Arm 2: 68 (SD 13)	NR	Maintenance of sinus rhythm

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Katritsis, 2004[86]	RCT; Outpatient; Europe; Fair	Total N: 52 Arm 1: AF ablation by PVI (transcatheter, single vein) (27) Arm 2: AF ablation by PVI (transcatheter, all veins) (25)	Arm 1 54 (SD 9) Arm 2: 50 (SD 10)	Arm 1: 0, 27 N, 0 Arm 2: 0, 25 N, 0	NR	Previously failed a rate- or rhythm-control pharmacological therapy strategy	NR	NR	Arm 1: 3 N Arm 2: 4 N	Maintenance of sinus rhythm Control of AF symptoms
Kochiadakis, 2004[87]	RCT; Outpatient, ED; Europe (Greece); Fair	Total N: 254 Arm 1: Sotalol (85) Arm 2: Propafenone (86) Arm 3: Placebo (83)	Arm 1: 63 (SD 7) Arm 2: 63 (SD 10) Arm 3: 62 (SD 10)	Arm 1: 0, 50 N, 35 N Arm 2: 0, 52 N, 34 N Arm 3: 0, 49 N, 34 N	Arm 1: 8 mo (SD 6) Arm 2: 9 mo (SD 7) Arm 3: 8 mo (SD 7)	None	NR	Arm 1: 52 (SD 12) Arm 2: 54 (SD 14) Arm 3: 53 (SD 11)	NR	Composite outcome (Recurrence of AF, Other adverse drug reaction); Composite outcome (Maintenance of sinus rhythm with no adverse effects from medication)
Kochiadakis, 2004[88]	RCT; Outpatient, ED; Europe (Greece); Fair	Total N: 146 Arm 1: Amiodarone (72) Arm 2: Propafenone (74)	Arm 1: 62 (SD 9) Arm 2: 64 (SD 8)	Arm 1: 0, 43 N, 29 N Arm 2: 0, 49 N, 25 N	Arm 1: 7 mo (SD 6) Arm 2: 9 mo (SD 8)	None	NR	Arm 1: 52 (SD 12) Arm 2: 54 (SD 14)	NR	Composite outcome (Recurrence of AF, Other adverse drug reaction); Recurrence of afib, Composite outcome (Maintenance of sinus rhythm, free from adverse drug reaction)

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Oral, 2004[89]	RCT; Outpatient; USA; Fair	Total N: 60 Arm 1: No further ablation following initial LACA (30) Arm 2: Use of electrogram guided additional LA ablation lines until AF terminated and became noninducible (30)	Arm 1: 55 (SD 11) Arm 2: 56 (SD 9)	Arm 1: 0, 30, 0 Arm 2: 0, 30, 0	Arm 1: 7 yr (SD 5) Arm 2: 6 yr (SD 4)	Previously failed a rate- or rhythm-control pharmaco-logical therapy strategy	NR	Arm1: 59 (SD 4) Arm 2: 58 (SD 7)	NR	Maintenance of sinus rhythm
Abreu Filho, 2005[90]	RCT; Inpatient; S. America; Fair	Total N: 70 Arm 1: Concomitant surgical Maze procedure (42) Arm 2: MV surgery alone (28)	Arm 1: 55.4 (SD 12.8) Arm 2: 50.7 (SD 9.7)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	Arm 1: 66.1 mo (SD 57.4) Arm 2: 43.8 mo (SD 28.5)	None	Arm 1: 100 Arm 2: 100	Arm 1: 62.8 (SD 9.1) Arm 2: 66.1 (SD 10.5)	NR	Maintenance of sinus rhythm All-cause mortality
Doukas, 2005[91]	RCT; NR; UK Good	Total N: 97 Arm 1: Concomitant AF ablation (open surgical) (49) Arm 2: MV surgery alone (48)	Arm 1 67.2 (SD 9) Arm 2: 67 (SD 8)	Arm 1: 100, 0, 0 Arm 2: 100, 0, 0	Arm 1: 57 mo (SD 55.1) Arm 2: 46.7 mo (SD 64.3)	None	NR	NR	NR	Restoration of sinus rhythm (conversion) Maintenance of sinus rhythm Quality of life/ Functional status Stroke Cardiac mortality

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Fassini, 2005[92]	RCT; NR; Europe; Fair	Total N: 187 Arm 1: PVD (92) Arm 2: PVD + MIL (95)	Total: 55 (SE 11) Arm 1: 57 (SE 8) Arm 2: 54 (SE 10)	Arm 1: 0, 63 N, 29 N Arm 2: 0, 63 N, 32 N	NR	None	NR	Arm 1: 56.8% Arm 2: 55.3%	NR	Maintenance of sinus rhythm
Karch, 2005[93]	RCT; Inpatient; Europe; Fair	Total N: 100 Arm 1: Circumferential (50) Arm 2: AF ablation by PVI (transcatheter, segmental) (50)	Arm 1: Median 59 (IQR 52-64) Arm 2: Median 61 (IQR 54-65)	Arm 1: 0, 43 N, 7 N Arm 2: 0, 46 N, 4 N	Arm 1: Median 5 yr (IQR 3-7) Arm 2: Mean 4 yr (IQR 2-7)	Previously failed a rate- or rhythm-control pharmacological therapy strategy	NR	Arm 1: Median 64 (IQR 61-72) Arm 2: Median 62 (IQR 57-68)	NR	Maintenance of sinus rhythm Control of AF symptoms Mixed embolic events including stroke
Oral, 2005[94]	RCT; NR; USA; Fair	Total N: 80 Arm 1: AF ablation by PVI (transcatheter, circumferential) (40) Arm 2: AF ablation by PVI (transcatheter, nonencircling) (40)	Arm 1: 52 (SD 8) Arm 2: 55 SD (10)	NR	Arm 1: 4 yr (SD 2) Arm 2: 5 yr (SD 4)	None	NR	Arm 1: 53% (SD 11%) Arm 2: 53% (SD 6%)	NR	Restoration of sinus rhythm (conversion) Recurrence of AF

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Singh, 2005[47] (SAFE-T) Atwood, 2007[48] Batcher, 2007[49] Singh, 2009 [50]	RCT; Outpatient; USA; Good	Total N: 665 Arm 1: Amiodarone (267) Arm 2: Sotalol (261) Arm 3: Placebo (137)	Arm 1: 67.1 (SD 9.4) Arm 2: 66.8 (SD 8.9) Arm 3: 67.7 (SD 9.8)	NR	NR	None	Arm 1: 67 N Arm 2: 72 N Arm 3: 33 N	Arm 1: 0.505 (SD 0.124) Arm 2: 0.515 (SD 0.119) Arm 3: 0.494 (SD 0.127)	Arm 1: 71 N Arm 2: 66 N Arm 3: 31 N	Restoration of sinus rhythm (conversion) Stroke All-cause mortality; Death due to arrhythmia; Recurrence of AF Quality of Life
Wazni, 2005[95]	RCT; NR; Europe; Fair	Total N: 70 Arm 1: AF ablation by PVI (transcatheter) (33) Arm 2: Flecainide, propafenone, sotalol, amiodarone (37)	Arm 1: 53 (SD 8) Arm 2: 54 (SD 8)	Arm 1: 0, 97, 3 Arm 2: 0, 95, 5	Arm 1: 5 mo (SD 2) Arm 2: 5 mo (SD 2.5)	None	NR	Arm 1: 53 (SD 5) Arm 2: 54 (SD 6)	NR	AF Hospitalizations Mixed embolic events including stroke Bleeding events (including hemorrhagic stroke) Quality of life/ Functional status Recurrence of AF
Calo, 2006[96]	RCT; NR; Europe; Good	Total N: 80 Arm 1: AF ablation by PVI (transcatheter, left atrial) (41) Arm 2: AF ablation by PVI (transcatheter, biatrial) (39)	Total: 58.6 (SD 8.9) Arm 1: 59.2 (SD 9.1) Arm 2: 57.9 (SD 8.9)	Arm 1: 17 N, 0, 24 N Arm 2: 20 N, 0, 19 N	Arm 1: 7 yr (SD 4) Arm 2: 8 yr (SD 3)	None	NR	Arm 1: 51.2 (SD 7.4) Arm 2: 50.2 (SD 7.8)	Arm 1: 9 N Arm 2: 8 N	Recurrence of AF

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Dixit, 2006[97]	RCT; NR; USA; Good	Total N: 82 Arm 1: AF ablation by PVI (transcatheter, 8mm tip) (42) Arm 2: AF ablation by PVI (transcatheter, cooled tip) (40)	Arm 1: 57 (SD 8) Arm 2: 57 (SD 8)	Arm 1: 0, 72, 0 Arm 2: 0, 73, 0	Arm 1: 68 mo (SD 42) Arm 2: 56 mo (SD 54)	Previously failed a rate- or rhythm-control pharmacological therapy strategy	NR	NR	NR	Maintenance of sinus rhythm Stroke

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Hemels, 2006[11] (VERDICT) Van Noord, 2001[12]	RCT; NR; Europe (Netherlands); Fair	Total N: 144 Arm 1: Electrical cardioversion (early or routine), Digoxin (70) Arm 2: Electrical cardioversion (early or routine), Verapamil (74)	Electrical cardioversion (early), Amiodarone: 65 (SD 11) Electrical cardioversion (routine), Sotalol: 66 (SD 8) Electrical cardioversion (early or routine), Digoxin: 65 (SD 11) Electrical cardioversion (early or routine), Verapamil: 65 (SD 8)	Electrical cardioversion (early), Amiodarone: 0, 0, 100 Electrical cardioversion (routine), Sotalol: 0, 0, 100 Electrical cardioversion (early or routine), Digoxin: 0, 0, 100 Electrical cardioversion (early or routine), Verapamil: 0, 0, 100	Electrical cardioversion (early), Amiodarone: 138 days Electrical cardioversion (routine), Sotalol: 113 days Electrical cardioversion (early or routine), Digoxin: 140 days Electrical cardioversion (early or routine), Verapamil: 117 days	None	Electrical cardioversion (early), Amiodarone: 7 Electrical cardioversion (routine), Sotalol: 6 Electrical cardioversion (early or routine), Digoxin: 7 Electrical cardioversion (early or routine), Verapamil: 5	NR	Electrical cardioversion (early), Amiodarone: 15 Electrical cardioversion (routine), Sotalol: 16 Electrical cardioversion (early or routine), Digoxin: 19 Electrical cardioversion (early or routine), Verapamil: 12	Control of ventricular rate, Restoration of sinus rhythm (conversion) Recurrence of AF, Maintenance of sinus rhythm, Quality of life/ Functional status

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Liu, 2006[98]	RCT; NR; Asia; Fair	Total N: 110 Arm 1: Circumferential PVI (55) Arm 2: Segmental PVI (55)	Arm 1: 57.3 (SD 9.6) Arm 2: 58.0 (SD 8.1)	NR	Arm 1: 5.4 yr (SD 3.6) Arm 2: 4.5 yr (SD 3.1)	Previously failed a rate- or rhythm-control pharmacological therapy strategy	NR	Arm 1: 64.1 (SD 6.7) Arm 2: 63.1 (SD 5.7)	NR	Maintenance of sinus rhythm Recurrence of AF
Nilsson, 2006[99]	RCT; Inpatient; Europe; Fair	Total N: 100 Arm 1: AF ablation by PVI (transcatheter, segmental) (54) Arm 2: AF ablation by PVI (transcatheter, circumferential) (46)	Total: 56 (SD 10) Arm 1: 55 (SD 10) Arm 2: 57 (SD 11)	Arm 1: 0, 52, 48 Arm 2: 0, 50, 50	Arm 1: 3.3 yr Arm 2: 5.0 yr	None	Arm 1: 19 Arm 2: 22	NR	Arm 1: 11 Arm 2: 17	Maintenance of sinus rhythm
Oral, 2006[100]	RCT; Inpatient, Outpatient; USA and Europe; Good	Total N: 146 Arm 1: Amiodarone, AF ablation by PVI (transcatheter) (77) Arm 2: Amiodarone, Electrical Cardioversion, AF ablation by PVI (transcatheter) (69)	Arm 1: 55 (SD 9) Arm 2: 58 (SD 8)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	Arm 1: 5 yr (SD 4) Arm 2: 4 yr (SD 4)	None	NR	Arm 1: 558 (SD 7) Arm 2: 56 (SD 7)	Arm 1: 3 N Arm 2: 4 N	Maintenance of sinus rhythm All-cause mortality

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Pappone, 2006[101] (APAF) Pappone, 2011[102]	RCT; Outpatient; Europe; Good	Total N: 198 Arm 1: AF ablation by PVI (transcatheter) (99) Arm 2: AAD (99)	Total: 56 (SD 10) Arm 1: 55 (SD 10) AAD: 57 (SD 10)	Total: 0, 100, 0	Total: 6 yr (SD 5) Arm 1: 6 yr (SD 4) AAD: 6 yr (SD 6)	Previously failed a rate- or rhythm-control pharmacological therapy strategy	NR	Arm 1: 60 (SD 8) AAD: 61 (SD 6)	Arm 1: 2 AAD: 2	Maintenance of sinus rhythm Quality of life/ Functional status CV hospitalizations
Sheikh, 2006[103]	RCT; NR; USA Fair	Total N: 100 Arm 1: PVI (50) Arm 2: PVI + 2 linear lesions; 1 between the superior PVs and 1 from the left inferior PV to the mitral valve annulus (50)	Arm 1: 60 (SD 12) Arm 2: 60 (SD 10)	NR	NR	None	NR	Arm 1: 54 (SD 12) Arm 2: 53 (SD 14)	NR	Control of AF symptoms Maintenance of sinus rhythm
Stabile, 2006[104] (Catheter Ablation For The Cure Of Atrial Fibrillation Study)	RCT; NR; Europe Good	Total N: 137 Arm 1: AF ablation by PVI (transcatheter), Amiodarone/AAD (68) Arm 2: Amiodarone/AAD (69)	AF ablation by PVI (transcatheter), Amiodarone/AAD: 62.2 (SD 9) Amiodarone/AAD: 62.3 (SD 10.7)	AF ablation by PVI (transcatheter), Amiodarone/AAD: 0, 42 N, 26 N Amiodarone/AAD: 0, 50 N, 19 N	AF ablation by PVI (transcatheter), Amiodarone/AAD: 5.1 yr (SD 3.9) Amiodarone/AAD: 7.1 yr (SD 5.9)	Previously failed a rate- or rhythm-control pharmacological therapy strategy	NR	AF ablation by PVI (transcatheter), Amiodarone/AAD: 59.1 (SD 6.7) Amiodarone/AAD: 57.9 (SD 5.8)	AF ablation by PVI (transcatheter), Amiodarone/AAD: 43 N Amiodarone/AAD: 43 N	Recurrence of AF

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Vijayalakshmi, 2006[55]	RCT; NR; UK; Good	Total N: 94 Arm 1: Control (31) Arm 2: Amiodarone (27) Arm 3: Sotalol (36)	Control: 64.8 (SD 9.1) Arm 2: 65.5 (SD 10.5) Sotalol: 62.8 (SD 9.3)	NR	Control: 7 mo (SD 4) Arm 2: 6.6 mo (SD 3.9) Sotalol: 7.3 mo (SD 4.4)	None	Control: 1 N Arm 2: 1 N Sotalol: 1 N	Control: 40 Arm 2: 51 Sotalol: 40	NR	All-cause mortality, Maintenance of sinus rhythm, Restoration of sinus rhythm (conversion)
Willems, 2006[105]	RCT; NR; NR; Good	Total N: 62 Arm 1: PVI + SM (= substrate modification consisting of a roofline connecting both left superior and right superior PV and LA isthmus ablation between left inferior PV and mitral annulus) (32) Arm 2: PVI (30)	Arm 1: 58.3 (SD 11.8) Arm 2: 60.1 (SD 9.3)	NR	Total: Median 7 mo Arm 1: Median 7 mo Arm 2: Median 7 mo	Previously failed a rate- or rhythm-control pharmacological therapy strategy	NR	NR	Arm 1: 4 N Arm 2: 4 N	Stroke Recurrence of AF

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Arentz, 2007[106]	RCT; NR; Europe; Fair	Total N: 110 Arm 1: AF ablation by PVI (transcatheter, small area) (55) Arm 2: AF ablation by PVI (transcatheter, large area) (55)	AF ablation by PVI (transcatheter, small area): 56 (SD 10) AF ablation by PVI (transcatheter, large area): 55 (SD 10)	AF ablation by PVI (transcatheter, small area): 0, 35 N, 20 N AF ablation by PVI (transcatheter, large area): 0, 32 N, 23 N	Total: 5.5 yr (SD 2.8)	None	NR	NR	NR	Maintenance of sinus rhythm
Blomstrom-Lundqvist, 2007[107] (SWEDMAF)	RCT; Inpatient (surgical patients) Europe (Sweden); Good	Total N: 65 Arm 1: Concomitant open surgical AF ablation (30) Arm 2: MV surgery alone (35)	Concomitant open surgical AF ablation: 69.5 (SD 7.9) Arm 2: 65.6 (SD 8.8)	Concomitant open surgical AF ablation: 100, 0, 0 Arm 2: 100, 0, 0	Concomitant open surgical AF ablation: 26 mo (SD 33) Arm 2: 33 mo (SD 54)	None	Total: 16.92 Concomitant open surgical AF ablation: 26.7 Arm 2: 8.6	Concomitant open surgical AF ablation: 53.6 % (SD 9.1) Arm 2: 57 % (SD 12)	Total: 23.07 Concomitant open surgical AF ablation: 20 Arm 2: 25.7	Maintenance of sinus rhythm
Nergardh, 2007[60]	RCT; NR; Europe (Sweden); Good	Total N: 168 Arm 1: Metoprolol (83) Arm 2: Placebo (85)	Metoprolol: 68.2 (SD 10.1) Placebo: 66.5 (SD 12.2)	NR	Metoprolol: 5.3 mo (SD 2.9) Placebo: 5.1 mo (SD 2.8)	None	NR	Metoprolol: 48.6 (SD 7.9) Placebo: 49.7 (SD 6.7)	Metoprolol: 4 N Placebo: 3 N	Control of ventricular rate, Maintenance of sinus rhythm, Restoration of sinus rhythm (conversion), All-cause mortality, Stroke

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Turco, 2007[108]	RCT; NR; Europe; Good	Total N: 107 Arm 1: AF ablation by PVI (transcatheter) (54) Arm 2: AF ablation by PVI (transcatheter) + AAD (53)	Total: 57 (SD 10)	Total: 0, 64 N, 43 N	Total: 4.5 yr (SD 4.2)	Previously failed a rate- or rhythm-control pharmacological therapy strategy	NR	Total: 57 (SD 7)	Total: 5 N	Recurrence of AF
Di Biase, 2008[109]	RCT; NR; USA, Canada, and Europe; Good	Total N: 103 Arm 1: AF ablation by PVI (transcatheter, PVAI) (35) Arm 2: AF ablation by PVI (transcathter, CFAE) (34) Arm 3: AF ablation by PVI (transcatheter, PVAI+CFAE) (34)	Arm 1: 57 (SD 8.1) Arm 2: 59.9 (SD 8.6) Arm 3: 58.4 (SD 7.5)	Arm 1: 0, 100, 0 Arm 2: 0, 100, 0 Arm 3: 0, 100, 0	Arm 1: 5.3 yr (SD 5.7) Arm 2: 5.1 yr (SD 4.1) Arm 3: 5.3 yr (SD 5)	None	NR	Arm 1: 55 (SD 8) Arm 2: 55.5 (SD 6) Arm 3: 54.6 (SD 6)	NR	Maintenance of sinus rhythm Restoration of sinus rhythm (conversion)
Dixit, 2008[110]	RCT; NR; USA; Good	Total N: 105 Arm 1: AF ablation by PVI (transcatheter, all veins) (53) Arm 2: AF ablation by PVI (transcatheter, selected veins) (52)	Arm 1: 57 (SD 9) Arm 2: 57 (SD 9)	Arm 1: 0, 77, 0 Arm 2: 0, 69, 0	Arm 1: 62 (SD 54) Arm 2: 61 (SD 53)	Previously failed a rate- or rhythm-control pharmacological therapy strategy	NR	NR	NR	All-cause mortality Maintenance of sinus rhythm Stroke

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Elayi, 2008[111]	RCT; NR; USA, Canada, and Europe; Good	Total N: 144 Arm 1: Circumferential PV ablation with a 3.5 mm tip irrigated catheter (47) Arm 2: Pulmonary vein antrum isolation (PVAI) using an open irrigation ablation catheter (48) Arm 3: Ablation of CFAE followed by PVAI (49)	Arm 1: 60.1 (SD 10.1) Arm 2: 58.1 (SD 10.3) Arm 3: 59.2 (SD 11.5)	Arm 1: 100, 0, 0 Arm 2: 100, 0, 0 Arm 3: 100, 0, 0	Arm 1: 6.7 yr (SD 3.2) Arm 2: 5.5 yr (SD 3.5) Arm 3: 6.3 yr (SD 2.5)	None	NR	Arm 1: 56% Arm 2: 52% Arm 3: 55%	Arm 1: 7 N Arm 2: 9 N Arm 3: 10 N	Restoration of sinus rhythm (conversion) Maintenance of sinus rhythm Stroke
Fiala, 2008[112]	RCT; NR; Europe; Good	Total N: 110 Arm 1: Segmental PVI (54) Arm 2: Circumferential PVI (56)	Total: 52 (SD 11) Arm 1: 51 (SD 11) Arm 2: 53 (SD 10)	Total: 0, 100, 0 Arm 1: 0, 100, 0 Arm 2: 0, 100, 0	Total: 7 yr (SD 6) Arm 1: 7 yr (SD 4) Arm 2: 8 yr (SD 6)	None	NR	Total: 60 (SD 6) Arm 1: 59 (SD 7) Arm 2: 60 (SD 4)	NR	Recurrence of AF Maintenance of sinus rhythm All-cause mortality

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Gaita, 2008[113]	RCT; Outpatient; Europe (Italy; Fair)	Total N: 204 Arm 1: AF ablation by PVI (transcatheter) (67) Arm 2: AF ablation by PVI (transcatheter, left linear) (137)	Arm 1: 53.3 (SD 9) Arm 2: 56.0 (SD 9.9)	Arm 1: 0, 61, 0 Arm 2: 0, 61, 0	Total: 5.2 yr (SD 4) Arm 1: 5.7 yr (SD 4.5) Arm 2: 4.9 yr (SD 3.8)	None	NR	NR	NR	Maintenance of sinus rhythm
Jais, 2008[114] (A4 Study)	RCT; Outpatient; Canada, Europe; Fair	Total N: 112 Arm 1: RF ablation (53) Arm 2: AAD use (59)	Arm 1: 49.7 (SD 10.7) Arm 2: 52.4 (SD 11.4)	Arm 1: 0, 100, 0 Arm 2: 0, 100, 0	NR	None	NR	Arm 1: 63.1 (SD 11.0) Arm 2: 65.6 (SD 7.2)	Arm 1: 6 N Arm 2: 3 N	Maintenance of sinus rhythm, Control of ventricular rate, Control of AF symptoms (e.g., palpitations, exercise capacity), Quality of life/ Functional status
Srivastava, 2008[115]	RCT; NR; Asia; Good	Total N: 160 Arm 1: Control (40) Arm 2: Surgical Maze procedure (biatrial) (40) Arm 3: Surgical Maze procedure (left atrial) (40) Arm 4: AF ablation by PVI (transcatheter) (40)	Arm 1: 36.74 (SD 9.79) Arm 2 37.11 (SD 11.12) Arm 3: 36.03 (SD 7.99) Arm 4 40.95 (SD 11.41)	NR	Arm 1: 12.17 mo Arm 2: 9.83 mo Arm 3: 12.48 mo Arm 4: 12.56 mo	None	NR	NR	NR	All-cause mortality Restoration of sinus rhythm (conversion)

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Albrecht, 2009[116]	RCT; NR; S. America; Fair	Total N: 60 Arm 1: Surgical PVI (20) Arm 2: Concomitant surgical Maze procedure (20) Arm 3: MV surgery alone (20)	Total: 53 (SD 14.2) Arm 1: 55.1 (SD 9.2) Arm 2: 51.7 (SD 12.4) Arm 3: 51.3 (SD 14.7)	Total: 100, 0, 0 Arm 1: 100, 0, 0 Arm 2: 100, 0, 0 Arm 3: 100, 0, 0	Total: 30.6 mo (SD 35.7) Arm 1: 31.78 mo (SD 31.6) Arm 2: 35.4 mo (SD 38.5) Arm 3: 24.6 mo (SD 32.0)	None	Total: 98.3 Arm 1: 100 Arm 2: 100 Arm 3: 95	Total: 63.2 (SD 8.5) Arm 1: 62.1 (SD 11.3) Arm 2: 64.3 (SD 7.1) Arm 3: 63.3 (SD 7.0)	NR	Restoration of sinus rhythm (conversion) Maintenance of sinus rhythm Recurrence of AF Recurrence of AF All-cause mortality Bleeding events (including hemorrhagic stroke)
Chevalier, 2009[117] (SAFIR)	RCT; Inpatient; Europe; Good	Total N: 43 Arm 1: Concomitant AF ablation (21) Arm 2: MV surgery alone (22)	Arm 1: 69.1 (SD 6.2) Arm 2: 66.31 (SD 9.7	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	Arm 1: 161 mo Arm 2: 89.2 mo	None	Arm 1: 63.6 Arm 2: 75.0	Arm 1: 59.8 (SD 8.5) Arm 2: 61.3 (SD 9.45)	NR	Restoration of sinus rhythm (conversion) Maintenance of sinus rhythm All-cause mortality Stroke Bleeding events (including hemorrhagic stroke) Composite outcome (Recurrence of AF (specify time period) : 12 months, All-cause mortality, Stroke, adverse surgical events)

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Deisenhofer, 2009[118]	RCT; NR: Europe; Good	Total N: 98 Arm 1: AF ablation by PVI (transcatheter) (48) Arm 2: AF ablation by PVI (transcatheter, CFAE) (50)	Total: 57 (SD 10) Arm 1: 58 (SD 10) Arm 2: 55 (SD 10)	Arm 1: 0, 100, 0 Arm 2: 0, 100, 0	Arm 1: 4 yr (SD 3) Arm 2: 4 yr (SD 4)	None	NR	NR	NR	Maintenance of sinus rhythm Composite outcome (Mixed embolic events including stroke, Pulmonary vein stenosis, pericardial tamponade)
Forleo, 2009[119]	RCT; NR; Europe (Italy); Good	Total N: 70 Arm 1: AF ablation by PVI (transcatheter) (35) Arm 2: Amiodarone, propafenone, sotalol (35)	Arm 1: 63.2 (SD 8.6) Arm 2: 64.8 (SD 6.5)	Arm 1: 0, 16 N, 19 N Arm 2: 0, 13 N, 22 N	Arm 1: Median 41 mo (IQR 18-66) Arm 2: Median 36 mo (IQR 17-55)	None	NR	Arm 1: 54.6 (SD 7.0) Arm 2: 52.6 (SD 8.6)	NR	Maintenance of sinus rhythm Recurrence of AF CV hospitalizations Mixed embolic events including stroke Quality of life/ Functional status
Khaykin, 2009[120]	RCT; Inpatient, Outpatient; US, Canada, UK, Europe; Good	Total N: 60 Arm 1: PVI (30) Arm 2: Circumferential PVI with CFAE ablation (30)	Arm 1: 54 (SD 7) Arm 2: 57 (SD 9)	Arm 1: 0, 25 N, 5 N Arm 2: 0, 23 N, 7 N	Arm 1: 8 yr (SD 8) Arm 2: 7 yr (SD 6)	None	Arm 1: 2 N Arm 2: 3 N	NR	NR	Maintenance of sinus rhythm Quality of life/ Functional status

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Oral, 2009[121]	RCT; Outpatient: USA; Good	Total N: 100 Arm1: Antral PVI targeting CFAEs (50) Arm 2: Antral PVI targeting CFAEs followed by additional ablation of CFAE in left atrium or coronary sinus (50)	Arm 1: 58 (SD 10) Arm 2: 62 (SD 8)	Arm 1: 0, 0, 50 Arm 2: 0, 0, 50	Arm 1: 6 yr (SD 5) Arm 2: 5 yr (SD 4)	None	NR	Arm 1: 53 (SD 12) Arm 2: 54 (SD 9)	Arm 1: 8 Arm 2: 9	Maintenance of sinus rhythm
Pontoppidan, 2009[122]	RCT; NR; Europe; Good	Total N: 149 Arm 1: AF ablation by PVI (transcatheter) (76) Arm 2: AF ablation by PVI (transcatheter, CTI) (73)	Arm 1: 56 (SD 8) Arm 2: 56 (SD 8)	Arm 1: 0, 55, 45 Arm 2: 0, 52, 48	Arm 1: Median 44 Arm 2: Median 60	None	Arm 1: 22 Arm 2: 21	Arm 1: 64 (SD 9) Arm 2: 60 (SD 10)	Arm 1: 3 N Arm 2: 4 N	Recurrence of AF
Roux, 2009[123] (5A) Leong-Sit, 2011[124]	RCT; Inpatient; USA; Good	Total N: 110 Arm 1: AAD (53) Arm 2: No AAD (57)	Arm 1: 56 (SD 8) Arm 2: 55 (SD 9)	NR	Arm 1: 71 mo (SD 68) Arm 2: 81 mo (SD 65)	None	NR	Arm 1: 61 (SD 8) Arm 2: 62 (SD 7)	Arm 1: 13 Arm 2: 12	Composite outcome (Maintenance of sinus rhythm, AF Hospitalizations, Other adverse drug reaction) Maintenance of sinus rhythm AF Hospitalizations

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Tamborero, 2009[125]	RCT; NR; Europe Good	Total N: 120 Arm 1: AF ablation by PVI (transcatheter, anterolateral) (60) Arm 2: AF ablation by PVI (transcatheter, posterolateral) (60)	Arm 1: 52.5 (SD 10.9) Arm 2: 52.9 (SD 10.8)	Arm 1: 12 N, 37 N, 11 N Arm 2: 12 N, 35 N, 13 N	Arm 1: 60.8 mo (SD 55.7) Arm 2: 67.1 mo (SD 48.2)	Previously failed a rate- or rhythm-control pharmacological therapy strategy	NR	Arm 1: 59.8 (SD 9.8) Arm 2: 59.5 (SD 10.1)	NR	Maintenance of sinus rhythm
von Oppell, 2009[126]	RCT; Inpatient; UK; Good	Total N: 49 Arm 1: Concomitant AF ablation by PVI (24) Arm 2: Cardiac surgery alone (25)	Arm 1: 66 (SD 8) Arm 2: 68 (SD 9)	Arm 1: 22 N, 0, 2 N Arm 2: 22 N, 0, 3 N	Arm 1: 7 yr (SD 10) Arm 2: 5 yr (SD 4)	None	Arm 1: 10 N Arm 2: 12 N	NR	Arm 1: 10 N Arm 2: 14 N	Restoration of sinus rhythm
Wang, 2009[127]	RCT; NR; Asia; Good	Total N: 299 Arm 1: AF ablation by PVI (transcatheter, left atrial + CTI) (149) Arm 2: AF ablation by PVI (transcatheter, biatrial) (150)	Total: 53 Arm 1: 54.2 (SD 10.1) Arm 2: 53.4 (SD 10.8)	Total: 100, 0, 0 Arm 1: 100, 0, 0 Arm 2: 100, 0, 0	Arm 1: 37 mo (SD 46) Arm 2: 35 mo (SD 37)	None	Total: 160 N Arm 1: 83 N Arm 2: 77 N	Total: 59 (SD 9) Arm 1: 59.3 (SD 8.9) Arm 2: 59.0 (SD 8.7)	NR	Maintenance of sinus rhythm All-cause mortality Restoration of sinus rhythm (conversion) Stroke

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Bulava, 2010[128]	RCT; Outpatient; Europe; Good	Total N: 102 Arm 1: PVI using a multipolar circular ablation catheter (PVAC group) (51) Arm 2: Point-by-point PV isolation using an irrigated-tip ablation catheter (51)	Arm 1: 56.5 (SD 9.9) Arm 2: 59.8 (SD 11.9)	Arm 1: 0, 51 N, 0 Arm 2: 0, 51 N, 0	NR	Previously failed a rate- or rhythm-control pharmacological therapy strategy	NR	Arm 1: 69.8 (SD 6.2) Arm 2: 67.6 (SD 7.9)	Arm 1: 2 N Arm 2: 3 N	Recurrence of AF Maintenance of sinus rhythm
Chen, 2010[129]	RCT; NR; Asia; Fair	Total N: 118 Arm 1: AF ablation by PVI (transcatheter, circumferential) (24) Arm 2: AF ablation by PVI (transcatheter, CFE) (35) Arm 3: AF ablation by PVI (transcathter, circumferential + CFE) (58)	Total: 56.0 (SD 11.2) Arm 1: 52.2 (SD 13.2) Arm 2: 57.6 (SD 9.1) Arm 3: 56.4 (SD 11.2)	Total: 0, 100, 0 Arm 1: 0, 100, 0 Arm 2: 0, 100, 0 Arm 3: 0, 100, 0	Total: 53.1 mo (SD 46.3) Arm 1: 52.9 mo (SD 42.2) Arm 2: 53.5 mo (SD 43.5) Arm 3: 51.8 mo (SD 46.5)	None	NR	Arm 1: 66.2 (SD 4.1) Arm 2: 65.9 (SD 4.7) Arm 3: 64.5 (SD 3.3)	Arm 1: 1 N Arm 2: 3 N Arm 3: 2 N	Recurrence of AF

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Corrado, 2010[130]	RCT; NR; Europe; Fair	Total N: 294 Arm 1: AF ablation by PVI (transcatheter, ICE) (160) Arm 2: AF ablation by PVI (transcatheter ICE + superior vena cava isolation [SVCI]) (134)	Arm 1: 57 (SD 9) Arm 2: 55 (SD 10)	Arm 1: 28, 46, 26 Arm 2: 29, 46, 25	Arm 1: 7.1 yr (SD 4) Arm 2: 6.5 yr (SD 5)	None	NR	Arm 1: 53 (SD 7) Arm 2: 54 (SD 6)	NR	Maintenance of sinus rhythm
Kim, 2010[131]	RCT; Outpatient; Asia; Fair	Total N: 102 Arm 1: AF ablation by PVI (transcatheter, additional ablation) (49) Arm 2: AF ablation by PVI (transcatheter) (53)	Arm 1: 52.3 (SD 9.8) Arm 2: 54.2 (SD 11.6)	Arm 1: 0, 49 N, 0 Arm 2: 0, 53 N, 0	Arm 1: 4.6 yr (SD 3.5) Arm 2: 4.3 yr (SD 4.0)	None	NR	Arm 1: 54.0 (SD 8.4) Arm 2: 56.0 (SD 5.5)	NR	Recurrence of AF Maintenance of sinus rhythm
Knaut, 2010[132]	RCT; NR; Europe; Fair	Total N: 45 Arm 1: Concomitant AF ablation by PVI (open surgical) (24) Arm 2: Cardiac surgery alone (21)	Arm 1: 74 (SD 4.4) Arm 2: 74.8 (SD 5.8)	NR	Arm 1: 5.9 yr (SD 4.4) Arm 2: 4.3 yr (SD 8.0)	None	NR	Arm 1: 55.8 (SD 13.6) Arm 2: 54.2 (SD 5.5)	Arm 1: 83.3 Arm 2: 71.4	All-cause mortality Maintenance of sinus rhythm

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Liu, 2010[133]	RCT; Inpatient; Asia; Fair	Total N: 99 Arm 1: AF ablation by PVI (transcatheter), Amiodarone (49) Arm 2: Concomitant surgical Maze procedure, Amiodarone (50)	Arm 1: 55 (SD 12) Arm 2: 54 (SD 10)	NR	Arm 1: 74 mo (SD 46) Arm 2: 67 mo (SD 47)	Previously failed a rate- or rhythm-control pharmacological therapy strategy	NR	Arm 1: 61.4 (SD 9.9) Arm 2: 65.1 (SD 10.9)	NR	Maintenance of sinus rhythm
Le Heuzey, 2010[134] (DIONYSOS)	RCT; NR: US, Canada, Europe, S. America, C. America, Asia, Australia/NZ; Good	Total N: 504 Arm 1: Dronedarone (249) Arm 2: Amiodarone (255)	Total: 64 (SD 10.7) Arm 1: 64.4 (SD 10.8) Arm 2: 63.7 (SD 10.6)	Total: 3, 4.4, 62.9 Arm 1: 2, 4.4, 61.8 Arm 2: 3.9, 4.3, 63.9	Total: Median 49 days (IQR 3-368) Arm 1: Median 47.5 day (IQR 3-368) Arm 2: Median 54 days (IQR 4-352)	None	Total: 21.6 Arm 1: 22.5 Arm 2: 20.8	NR	Total: 17.9 Arm 1: 18.9 Arm 2: 16.9	Recurrence of AF, Composite outcome (Recurrence of AF, Other adverse drug reaction), Mortality

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Pires, 2010[135]	RCT; Inpatient; S. America; Fair	Total N: 22 Arm 1: Concomitant AF ablation by PVI (open surgical, incisions) (10) Arm 2: Concomitant AF ablation by PVI (open surgical, radiofrequency) (12)	Arm 1: 62.1 (SD 8.3) Arm 2: 56.5 (SD 11.5)	Arm 1: 10 N, 0, 0 Arm 2: 12 N, 0, 0	NR	None	Arm 1: 8 N Arm 2: 11 N	Arm 1: 62.8 (SD 10.8) Arm 2: 59.3 (SD 15.3)	Arm 1: 1 N Arm 2: 1 N	Restoration of sinus rhythm (conversion) Recurrence of AF
Wilber, 2010[136] (ThermoCool AF) Reynolds, 2010[137]	RCT; Inpatient, Outpatient; US, Canada, Europe, C. America Good	Total N: 167 Arm 1: AAD (61) Arm 2: AF ablation by PVI (transcatheter) (106)	Arm 1: 55.8 (SD 13.1) Arm 2: 55.5 (SD 9.4)	NR	NR	Previously failed a rate- or rhythm-control pharmacological therapy strategy	NYHA class I or II Arm 1: 54 N Arm 2: 92 N	Arm 1: 62.7 Arm 2: 62.3	NR	Quality of life/ Functional status, Control of AF symptoms
Van Breugel, 2010[138]	RCT; Inpatient; Europe; Good	Total N: 132 Arm 1: Cardiac surgery alone (67) Arm 2: Concomitant AF ablation by PVI (open surgical) (65)	Total: 68.2 (SD 9.1) Arm 1: 71.0 (IQR 38.8-85.0) Arm 2: 61.9 (IQR 46.6-81.0)	Total: 43 N, 57 N, 30 N Arm 1: 21 N, 30 N, 15 N Arm 2: 22 N, 27 N, 15 N	Total: 81 (SD 102.4) Arm 1: 84.1 (IQR 3-618) Arm 2: 78.0 (IQR 33-403)	None	NR	Total: 52.6 (SD 7.5) Arm 1: 56.5 (IQR 30-80) Arm 2: 48.8 (IQR 18-79)	NR	Quality of life/ Functional status Maintenance of sinus rhythm

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Verma, 2010[139] (STAR AF)	RCT; Inpatient, Outpatient; Canada, Europe; Good	Total N: 101 Arm 1: AF ablation by PVI (transcatheter, CFE) (34) Arm 2: AF ablation by PVI (transcatheter, PVAI) (32) Arm 3: AF ablation by PVI (transcatheter, PVAI+CFE) (34)	Total: 57 (SD 10) Arm 1: 57 (SD 9) Arm 2: 55 (SD 11) Arm 3: 59 (SD 10)	Arm 1: 0, 21 N, 13 N Arm 2: 0, 21 N, 11 N Arm 3: 0, 22 N, 12 N	Total: 7 yr (SD 7) Arm 1: 6.4 yr (SD 6.0) Arm 2: 6.4 yr (SD 6.6) Arm 3: 7.6 yr (SD 9.4)	Previously failed a rate- or rhythm-control pharmacological therapy strategy	Total: 3 N Arm 1: 1 N Arm 2: 2 N	Total: 62 (SD 10) Arm 1: 64 (SD 10) Arm 2: 62 (SD 7) Arm 3: 59 (SD 12)	Total: 7 N Arm 1: 3 N Arm 2: 1 N Arm 3: 3 N	Maintenance of sinus rhythm
Bittner, 2011[140]	RCT; NR; Europe (Germany); Good	Total N: 80 Arm 1: PVI using a new circular ablation catheter (40) Arm 2: PVI using a point by point conventional ablation catheter (40)	Arm 1: 57 (SD 11) Arm 2: 59 (SD 9)	Arm 1: 0, 21 N, 19 N Arm 2: 0, 23 N, 17 N	Arm 1: 78 mo (SD 76) Arm 2: 104 mo (SD 91)	None	NR	NR	NR	Maintenance of sinus rhythm

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Dixit, 2011[141] (RASTA)	RCT; NR; USA; Good	Total N: 156 Arm 1: AF ablation by PVI (transcatheter) (55) Arm 2: AF ablation by PVI (transcatheter, PV triggers) (50) Arm 3: AF ablation by PVI (transcatheter, CFE) (51)	Total: 58 (SD 9) Arm 1: 59 (SD 8) Arm 2: 57 (SD 10) Arm 3: 60 (SD 9)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100 Arm 3: 0, 0, 100	Arm 1: 56 mo (SD 65) Arm 2: 44 mo (SD 44) Arm 3: 43 mo (SD 40)	None	Arm 1: 18 Arm 2: 18 Arm 3: 16	Arm 1: 0.56 (SD 0.9) Arm 2: 0.57 (SD 0.10) Arm 3: 0.56 (SD 0.14)	NR	Maintenance of sinus rhythm Recurrence of AF Mixed embolic events including stroke
MacDonald, 2011[142]	RCT; Outpatient; UK; Poor	Total N: 41 Arm 1: Control (19) Arm 2: AF ablation by PVI (transcatheter) (22)	Arm 1: 64.4 (SD 8.3) Arm 2: 62.3 (6.7)	NR	Arm 1: 64 (SD 47.6) Arm 2: 44 (SD 36.5)	Heart failure	Arm 1: 100 Arm 2: 100	Arm 1: 19.6 (SD 5.5) Arm 2: 16.1 (SD 7.1)	Arm 1: 10 N Arm 2: 11 N	Maintenance of sinus rhythm, Quality of life/ Functional status
Boersma, 2012[143] (FAST)	RCT; NR; Europe; Good	Total N: 124 Arm 1: AF ablation by PVI (transcatheter) (63) Arm 2: AF ablation by PVI (minimally invasive surgical PVI) (61)	Total: 56 (SD 8) Arm 1: 56.0 (SD 7.2) Arm 2: 56.1 (SD 8.0)	Total: 0, 67, 33 Arm 1: 0, 37 N, 26 N Arm 2: 0, 45 N, 16 N	Arm 1: 6.8 yr (SD 5.3) Arm 2: 7.4 yr (SD 6.3)	Previously failed a rate- or rhythm-control pharmacological therapy strategy	NR	Arm 1: 55.5 (SD 8.2) Arm 2: 57.7 (SD 6.8)	NR	Maintenance of sinus rhythm

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Duration of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Gavin, 2012[144]	RCT; Outpatient; Australia/NZ; Fair	Total N: 42 Arm 1: AF ablation by PVI (transcatheter) (22) Arm 2: AF ablation by PVI (transcatheter, coronary sinus) (20)	Arm 1: 68 Arm 2: 67	NR	Arm 1: 19 mo Arm 2: 17 mo	None	NR	Arm 1: 63.5 Arm 2: 64.8	NR	Maintenance of sinus rhythm

Abbreviations: [To be added in final CER]

Appendix Table F-6. Study characteristics—KQ 6

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Hohnloser, 2000[145] (PIAF) Gronefeld, 2003[146]	RCT; NR; Europe; Good	Total N: 252 Arm 1: Rhythm control (amiodarone) (127) Arm 2: Rate control (diltiazem) (125)	Arm 1: 60 (SD 10) Arm 2: 61 (SD 9)	NR	Arm 1: 103 days (SD 91) Arm 2: 118 days (SD 105)	None	NR	NR	Total: 23.41 Arm 1: 20 Arm 2: 26	Control of AF symptoms, Restoration of sinus rhythm, Quality of life/functional status
Brignole, 2002[147] (PAF 2)	RCT; Outpatient; Europe; Fair	Total N: 137 Arm 1: Rate control with AVN ablation and pacemaker only (69) Arm 2: AVN ablation with pacemaker implantation and rhythm control with pharmacological therapy (68)	Arm 1: 69 (SD 8) Arm 2: 67 (SD 8)	Arm 1: 0, 100, 0 Arm 2: 0, 100, 0	Arm 1: 9 yr (SD 7) Arm 2: 8 yr (SD 7)	None	NR	NR	Arm 1: 16 Arm 2: 16	Heart failure symptoms, CV hospitalizations, Stroke, Myocardial infarction, Quality of life/functional status, Recurrence of AF

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Van Gelder, 2002[148] (RACE) Hagens, 2004[149] Hagens, 2006[150] Hagens, 2005[151] Rienstra, 2007[152] Rienstra, 2005[153]	RCT; Outpatient; Europe; Good	Total N: 522 Arm 1: Rate control (256) Arm 2: Rhythm control (266)	Arm 1: 68 (SD 9) Arm 2: 68 (SD 8)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	Arm 1: Median 337 days Arm 2: Median 309 days	None	Arm 1: 51 Arm 2: 49	NR	Arm 1: 29 Arm 2: 26	Composite outcome (Cardiac mortality, Mixed embolic events including stroke, Bleeding events including hemorrhagic stroke), Cardiac mortality, Mixed embolic events including stroke, Bleeding events, Maintenance of sinus rhythm, Control of ventricular rate, Quality of life/functional status
Wyse, 2002[154] (AFFIRM) Bush, 2006[155] Chung, 2005[156] Curtis, 2005[157] Guglin, 2010[158] Jenkins, 2005[159] Sherman, 2005[160] Steinberg, 2004[161]	RCT; Outpatient; US, Canada; Good	Total N: 4060 Arm 1: Rate control (2027) Arm 2: Rhythm control (2033)	Total: 69.7 (SD 9.0) Arm 1: 69.8 (SD 8.9) Arm 2: 69.7 (SD 9.0)	NR	Total: 2808 days (SD 69.2) Arm 1: 1406 days (SD 69.4) Arm 2: 1402 days (SD 69.0)	None	Total: 23.1 Arm 1: 23.4 Arm 2: 22.8	Total: 54.7 (SD 13.5) Arm 1: 54.9 (SD 13.1) Arm 2: 54.6 (SD 13.8)	Total: 26.1 Arm 1: 24.5 Arm 2: 27.6	All-cause mortality, Composite outcome (All-cause mortality, Stroke, Bleeding events including hemorrhagic stroke,Other adverse drug reaction), Stroke, Other embolic events excluding stroke, Bleeding events, Quality of lifefunctional status

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Carlsson, 2003[162] (STAF) Carlsson, 2003[163]	RCT; Outpatient; Europe; Good	Total N: 200 Arm 1: Rhythm control (100) Arm 2: Rate control (100)	Arm 1: 65.3 (SD 9.4) Arm 2: 66.2 (SD 7.6)	NR	Arm 1: 6 mo (SD 2) Arm 2: 6 mo (SD 3)	None	Arm 1: 9 N Arm 2: 16 N	NR	Arm 1: 34 N Arm 2: 53 N	Composite outcome (All-cause mortality, Stroke, Other embolic events, excluding stroke), All-cause mortality, Cardiac mortality, Stroke, Bleeding events, CV hospitalizations, Maintenance of sinus rhythm, Quality of life/functional status
Okcun, 2004[164]	RCT; Inpatient; Europe; Fair	Total N: 154 Arm 1: Rhythm control (amiodarone, electrical cardioversion) (70) Arm 2: Rate control (digoxin or metoprolol) (84)	Arm 1: 61 (SD 10) Arm 2: 58 (SD 12)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	Arm 1: 11 mo (SD 7) Arm 2: 13 mo (SD 6)	None	NR	Arm 1: 31 (SD 8) Arm 2: 33 (SD 15)	NR	Mixed embolic events including stroke, All-cause mortality, Stroke

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Opolski, 2004[165] (HOT CAFÉ) Opolski, 2003[166] Pietrasik, 2007[167] Szulc, 2006[168]	RCT; Outpatient; Europe; Good	Total N: 205 Arm 1: Rate control (101) Arm 2: Rhythm control (104)	Total: 60.8 (SD 11.2) Arm 1: 61.4 (SD 17.6) Arm 2: 60.4 (SD 7.9)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	Total: 273.7 days (SD 112.4) Arm 1: 243.2 days (SD 137.3) Arm 2: 220.4 days (SD 148.6)	None	NR	NR	Arm 1: 37.6 Arm 2: 50	Composite outcome (All-cause mortality, Mixed embolic events including stroke, Bleeding events including hemorrhagic stroke), All-cause mortality, Cardiac mortality, Stroke, Bleeding events, Maintenance of sinus rhythm, Control of ventricular rate, Quality of life/functional status
Vora, 2004[169] (CRRAFT) Vora, 2004[170]	RCT; Outpatient; Asia (India); Fair	Total N: 144 Arm 1: Placebo (48) Arm 2: Rhythm control (amiodarone) (48) Arm 3: Rate control (diltiazem, electrical cardioversion) (48)	Total: 38.6 (SD 10.3) Arm 1: 38 Arm 2: 39.5 Arm 3: 38.4	NR	Total: 6.1 yr (SD 5.4)	None	Total: 3 N Arm 1: 3 N Arm 2: 5 N Arm 3: 2 N	Arm 1: 56 Arm 2: 55 Arm 3: 56.6	NR	Restoration of sinus rhythm, Maintenance of sinus rhythm, Control of AF symptoms, Heart failure symptoms, Quality of life/functional status, All-cause mortality, Bleeding events

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Petrac, 2005[24]	RCT; Outpatient; Europe; Good	Total N: 102 Arm 1: Rate control with AVN ablation and VVI-R pacemaker (52) Arm 2: Rate control with AVN ablation and DDD-R pacemaker and an antiarrhythmic drug (50)	Arm 1: 62 (SD 10) Arm 2: 60 (SD 11)	Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	NR	None	History of HF: Arm 1: 23.1 Arm 2: 12	NR	Arm 1: 23.1 Arm 2: 16.0	Cardiac mortality, Stroke, All-cause mortality, CV hospitalizations, Recurrence of AF, Heart failure symptoms, Myocardial infarction, Composite outcome (Cardiac mortality, Stroke)
Khan, 2008[1/1] (PABA-CHF)	RCT; Inpatient, Outpatient; NR; Good	Total N: 81 Arm 1: Rhythm control (AF ablation by PVI, transcatheter) (41) Arm 2: Rate control (AVN ablation and PPM) (40)	Arm 1: 60 (SD 8) Arm 2: 61 (SD 8)	Arm 1: 0, 49, 51 Arm 2: 0, 54, 46	Arm 1: 4 yr (SD 2.4) Arm 2: 3.9 yr (SD 2.8)	Heart failure	Total: 100 Arm 1: 100 Arm 2: 100	Arm 1: 27 (SD 8) Arm 2: 29 (SD 7)	Arm 1: 73 Arm 2: 68	Composite outcome (Quality of life/functional status), Quality of life/functional status, Maintenance of sinus rhythm
Yildiz, 2008[1/2]	RCT; NR; Europe; Poor	Total N: 221 Arm 1: Rhythm control (155) Arm 2: Rate control (66)	Arm 1: 61 (SD 9) Arm 2: 57 (SD 11)	NR	Arm 1: 11 mo (SD 7) Arm 2: 13 mo (SD6)	None	NR	Arm 1: 60 (SD 11) Arm 2: 63 (SD 9)	NR	Maintenance of sinus rhythm, Mixed embolic events including stroke, Stroke, All-cause mortality, Quality of life/functional status

Study	Study Design; Setting; Location; Quality	Total N; Interventions (N)	Mean Age	Type of AF: (% [or N] Permanent, Paroxysmal, Persistent)	Dura-tion of AF	Special Population	% HF	Mean LVEF	% CAD	Outcomes Assessed
Shelton, 2009[173] (CAFÉ-II)	RCT; Outpatient; UK Good	Total N: 61 Arm 1: Rate control (digoxin or beta blockers) (31) Arm 2: Rhythm control (amiodarone, electrical cardioversion) (30)	Total: 72.4 (SD 7.1) Arm 1: 72.7 (SD 8.3) Arm 2: 72 (SD 5.4)	Total: 0, 0, 100 Arm 1: 0, 0, 100 Arm 2: 0, 0, 100	Total: Median 14 (IQR 6-32) Arm 1: Median 15 mo (IQR 8-34) Arm 2: Median 14 mo (IQR 5-31)	Heart failure	NR	NR	Total: 50 Arm 1: 55 Arm 2: 44	Quality of life/ Functional status
Talajic, 2010[174] (AF-CHF) Roy, 2008[175]	RCT; Outpatient; US, Canada, S. America, Israel; Good	Total N: 1376 Arm 1: Rhythm control (electrical cardioversion, AAD) (682) Arm 2: Rate control (beta blockers, digoxin) (694)	Arm 1: 66 (SD 11) Arm 2: 67 (SD 11)	Arm 1: 0, 33, 67 Arm 2: 0, 30, 70	NR	Heart failure	Arm 1: 32 Arm 2: 31	Arm 1: 27 (SD 6) Arm 2: 27 (SD 6)	Arm 1: 48 Arm 2: 48	Cardiac mortality, All-cause mortality, Heart failure symptoms, Stroke, Composite outcome (All-cause mortality, Heart failure symptoms, Stroke), AF hospital-izations
MacDonald, 2011[142]	RCT; Outpatient; UK; Poor	Total N: 41 Arm 1: Rate control (19) Arm 2: Rhythm control (AF ablation by PVI, transcatheter) (22)	Arm 1: 64.4 (SD 8.3) Arm 2: 62.3 (6.7)	NR	Arm 1: 64 (SD 47.6) Arm 2: 44 (SD 36.5)	Heart failure	Arm 1: 100 Arm 2: 100	Arm 1: 19.6 (SD 5.5) Arm 2: 16.1 (SD 7.1)	Arm 1: 10 N Arm 2: 11 N	Maintenance of sinus rhythm, Quality of life/ Functional status

Abbreviations: [To be added in final CER]

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