

Supplementary Table S1. Ten- year cumulative incidence (%) and 95% confidence interval for several different definitions of HF (Framingham, ICD-9/10 and physician-diagnosed) by decade of RA incidence

Event Type Following RA criteria date	1980-1989	1990-1999	2000-2009
	RA	RA	RA
Any HF by chart review	11.66 (7.86-17.29)	12.64 (9.31-17.17)	7.67 (5.36-10.97)
Framingham HF	8.47 (5.29-13.56)	10.81 (7.75-15.08)	7.07 (4.87-10.26)
Framingham HF with Preserved EF	1.59 (0.52-4.90)	5.93 (3.73-9.41)	4.35 (2.69-7.04)
Framingham with Reduced EF	3.70 (1.79-7.67)	2.09 (0.95-4.62)	1.64 (0.74-3.67)
Physician diagnosis of HF	11.13 (7.42-16.67)	12.29 (9.01-16.78)	7.64 (5.34-10.94)
Physician diagnosis of HF, inpatient	8.35 (5.22-13.37)	6.94 (4.54-10.60)	5.13 (3.30-7.96)
ICD 9/10 (1code) for HF	11.89 (8.02-17.62)	12.59 (9.23-17.18)	11.41 (8.50-15.33)
ICD 9/10 (2 codes) for HF	7.90 (4.85-12.86)	10.08 (7.13-14.25)	8.50 (6.05-11.93)

Supplementary Table S2. Decade of index date as a risk factor to predict HF by RF/CCP status in RA cases*

Event Type	Decade	Total (Event): RF/CCP-pos	HR (CI): RF/CCP-pos	Total (Event): RF/CCP-neg	HR (CI): RF/CCP-neg
Framingham HF	1980-1989	130 (42)	Reference	61 (20)	Reference
Framingham HF	1990-1999	204 (48)	0.89 (0.57-1.40)	87 (20)	0.94 (0.48-1.82)
Framingham HF	2000-2009	275 (26)	0.64 (0.37-1.11)	120 (14)	1.14 (0.52-2.47)
Framingham HF with Preserved EF	1980-1989	130 (17)	Reference	61 (8)	Reference
Framingham HF with Preserved EF	1990-1999	204 (21)	0.98 (0.49-1.97)	87 (12)	1.85 (0.63-5.46)
Framingham HF with Preserved EF	2000-2009	275 (15)	0.92 (0.41-2.05)	120 (9)	2.69 (0.80-9.08)
Framingham HF with Reduced EF	1980-1989	130 (18)	Reference	61 (7)	Reference
Framingham HF with Reduced EF	1990-1999	204 (17)	0.79 (0.38-1.65)	87 (2)	0.21 (0.04-1.04)
Framingham HF with Reduced EF	2000-2009	275 (8)	0.67 (0.26-1.77)	120 (3)	0.50 (0.12-2.11)
MD Diagnosed HF	1980-1989	130 (44)	Reference	61 (22)	Reference
MD Diagnosed HF	1990-1999	204 (55)	1.00 (0.65-1.54)	85 (25)	1.03 (0.56-1.90)
MD Diagnosed HF	2000-2009	275 (32)	0.80 (0.47-1.35)	118 (13)	0.89 (0.41-1.90)
Inpatient HF	1980-1989	130 (32)	Reference	64 (16)	Reference
Inpatient HF	1990-1999	204 (33)	0.78 (0.46-1.33)	89 (16)	0.84 (0.41-1.75)
Inpatient HF	2000-2009	279 (22)	0.73 (0.39-1.36)	121 (8)	0.72 (0.28-1.84)
ICD 9/10 (1 code) for HF	1980-1989	128 (48)	Reference	60 (26)	Reference
ICD 9/10 (1 code) for HF	1990-1999	199 (51)	0.89 (0.57-1.37)	84 (24)	0.72 (0.41-1.28)
ICD 9/10 (1 code) for HF	2000-2009	272 (39)	1.12 (0.68-1.84)	113 (14)	0.66 (0.33-1.31)
ICD 9/10 (2 codes) for HF	1980-1989	131 (39)	Reference	62 (21)	Reference
ICD 9/10 (2 codes) for HF	1990-1999	205 (42)	0.90 (0.56-1.46)	87 (17)	0.66 (0.34-1.29)
ICD 9/10 (2 codes) for HF	2000-2009	278 (33)	1.08 (0.62-1.86)	119 (15)	1.00 (0.48-2.09)

**Adjusted for Age and Sex
Follow-up truncated to 4/30/2019*

Supplementary Table S3. Decade of index date as a risk factor to predict HF by RF/CCP status in RA cases*

Event Type	Decade	Total (Event): RF/CCP-pos	HR (CI): RF/CCP-pos	Total (Event): RF/CCP-neg	HR (CI): RF/CCP-neg
Framingham HF	1980-1989	130 (42)	Reference	61 (20)	Reference
Framingham HF	1990-1999	204 (48)	0.85 (0.53-1.34)	87 (20)	1.18 (0.56-2.46)
Framingham HF	2000-2009	275 (26)	0.54 (0.30-0.96)	120 (14)	1.23 (0.52-2.93)
Framingham HF with Preserved EF	1980-1989	130 (17)	Reference	61 (8)	Reference
Framingham HF with Preserved EF	1990-1999	204 (21)	0.84 (0.42-1.71)	87 (12)	2.42 (0.73-7.98)
Framingham HF with Preserved EF	2000-2009	275 (15)	0.66 (0.28-1.54)	120 (9)	2.29 (0.60-8.76)
Framingham HF with Reduced EF	1980-1989	130 (18)	Reference	61 (7)	Reference
Framingham HF with Reduced EF	1990-1999	204 (17)	0.78 (0.36-1.69)	87 (2)	0.34 (0.06-1.93)
Framingham HF with Reduced EF	2000-2009	275 (8)	0.62 (0.22-1.74)	120 (3)	0.93 (0.18-4.72)
MD Diagnosed HF	1980-1989	130 (44)	Reference	61 (22)	Reference
MD Diagnosed HF	1990-1999	204 (55)	0.95 (0.61-1.48)	85 (25)	1.09 (0.56-2.11)
MD Diagnosed HF	2000-2009	275 (32)	0.67 (0.38-1.16)	118 (13)	0.80 (0.35-1.84)
Inpatient HF	1980-1989	130 (32)	Reference	64 (16)	Reference
Inpatient HF	1990-1999	204 (33)	0.72 (0.42-1.23)	89 (16)	0.88 (0.39-1.97)
Inpatient HF	2000-2009	279 (22)	0.57 (0.30-1.11)	121 (8)	0.72 (0.26-1.98)
ICD 9/10 (1 code) for HF	1980-1989	128 (48)	Reference	60 (26)	Reference
ICD 9/10 (1 code) for HF	1990-1999	199 (51)	0.86 (0.55-1.34)	84 (24)	0.87 (0.46-1.64)
ICD 9/10 (1 code) for HF	2000-2009	272 (39)	0.97 (0.58-1.64)	113 (14)	0.77 (0.36-1.67)
ICD 9/10 (2 codes) for HF	1980-1989	131 (39)	Reference	62 (21)	Reference
ICD 9/10 (2 codes) for HF	1990-1999	205 (42)	0.90 (0.55-1.47)	87 (17)	0.81 (0.39-1.69)
ICD 9/10 (2 codes) for HF	2000-2009	278 (33)	0.91 (0.51-1.62)	119 (15)	1.20 (0.53-2.71)

***Adjusted for Age, Sex, Smoking, Obesity, Diabetes, HTN, Dyslipidemia
Follow-up truncated to 4/30/2019**

Supplementary Table S4. Decade of index date as a risk factor to predict HF by RF/CCP status in RA cases*

Event Type	Decade	Total (Event): RF/CCP-pos	HR (CI): RF/CCP-pos	Total (Event): RF/CCP-neg	HR (CI): RF/CCP-neg
Framingham HF	1980-1989	130 (42)	Reference	61 (20)	Reference
Framingham HF	1990-1999	204 (48)	0.86 (0.52-1.42)	87 (20)	1.05 (0.47-2.34)
Framingham HF	2000-2009	275 (26)	0.56 (0.29-1.09)	120 (14)	0.80 (0.29-2.22)
Framingham HF with Preserved EF	1980-1989	130 (17)	Reference	61 (8)	Reference
Framingham HF with Preserved EF	1990-1999	204 (21)	0.93 (0.44-2)	87 (12)	3.60 (0.85-15.27)
Framingham HF with Preserved EF	2000-2009	275 (15)	0.76 (0.29-2.02)	120 (9)	1.65 (0.31-8.78)
Framingham HF with Reduced EF	1980-1989	130 (18)	Reference	61 (7)	Reference
Framingham HF with Reduced EF	1990-1999	204 (17)	0.69 (0.30-1.61)	87 (2)	0.29 (0.05-1.79)
Framingham HF with Reduced EF	2000-2009	275 (8)	0.55 (0.17-1.74)	120 (3)	1.02 (0.15-6.79)
MD Diagnosed HF	1980-1989	130 (44)	Reference	61 (22)	Reference
MD Diagnosed HF	1990-1999	204 (55)	0.97 (0.60-1.57)	85 (25)	0.93 (0.44-1.93)
MD Diagnosed HF	2000-2009	275 (32)	0.69 (0.37-1.29)	118 (13)	0.55 (0.21-1.47)
Inpatient HF	1980-1989	130 (32)	Reference	64 (16)	Reference
Inpatient HF	1990-1999	204 (33)	0.73 (0.40-1.32)	89 (16)	0.79 (0.33-1.89)
Inpatient HF	2000-2009	279 (22)	0.59 (0.28-1.26)	121 (8)	0.44 (0.13-1.44)
ICD 9/10 (1 code) for HF	1980-1989	128 (48)	Reference	60 (26)	Reference
ICD 9/10 (1 code) for HF	1990-1999	199 (51)	0.87 (0.54-1.41)	84 (24)	0.76 (0.39-1.50)
ICD 9/10 (1 code) for HF	2000-2009	272 (39)	1.03 (0.56-1.87)	113 (14)	0.62 (0.25-1.55)
ICD 9/10 (2 codes) for HF	1980-1989	131 (39)	Reference	62 (21)	Reference
ICD 9/10 (2 codes) for HF	1990-1999	205 (42)	1.03 (0.61-1.74)	87 (17)	0.75 (0.34-1.65)
ICD 9/10 (2 codes) for HF	2000-2009	278 (33)	1.14 (0.59-2.22)	119 (15)	0.86 (0.32-2.31)

***Adjusted for Age, Sex, Smoking, Obesity, Diabetes, HTN, Dyslipidemia, use of MTX, HCQ, Other DMARDs, Biologics
Follow-up truncated to 4/30/2019**