

Supplemental Table 7. Studies reporting the prevalence of hypertension in multiple sclerosis

Study (Year)	Region/ Sub-Region	Source/ Population	Prevalence Day/Period	Diagnostic Criteria: MS/ Established By	Diagnostic Criteria: Hypertension/ Established By	Crude Overall Prevalence (95%CI)	Age-Standardized Overall Prevalence (95%CI)	Crude Prevalence (95%CI)		Standardized Prevalence (95%CI)		Quality Score
								Males	Females	Males	Females	
Allen ⁷ (2008)	United States/New York	SPARCS/ 95% of New York State acute care hospitalizations	1988-2002	ICD-9-CM 340.0 as secondary discharge diagnosis	ICD-9-CM 400-405 as primary or secondary discharge diagnosis	1820/9,949 = 18.3%	NR	NR	NR	NR	NR	4/8
Buchanan ¹⁶ (2006)	United States	Randomly selected from NMSS membership	Oct 2004-Jan 2005	Mailed Survey	Telephone survey/ Mailed survey	Urban 27.4% Adjacent rural 30.4% Remote rural 23.1%	NR	NR	NR	NR	NR	2/9
Christiansen ⁵ (2010)	Denmark	DNRP, incident (hospitalized) MS	1977-2006	ICD-10 G35.9, ICD-8 340 (prior to 1993)	DNRP codes (NR)	At baseline 0/13,963 = 0%	NR	NR	NR	NR	NR	6/8
Fleming ¹¹ (1994)	United States	Hospitalized Medicare MS	1989	ICD-9-CM code 340 or DRG 13	Administrative data code (code NR)	7.42%	NR	NR	NR	NR	NR	4/8

		population, age ≥ 65 years										
Fuvesi ⁵³ (2010)	Hungary	3 outpatient MS clinics across Hungary/co nsecutive patients without active relapses	September 2003-April 2004	Neurologist diagnosed: McDonald 2001	Survey/Self report	High blood pressure 60/438 = 13.7%	NR	NR	NR	NR	NR	4/9
Horton ²⁶ (2010)	Canada/ Manitoba United States/ Ohio	Participants recruited from 2 different MS clinics	Oct 2008-Oct 2009	MacDonald 2005; diagnosed by neurologist at MS clinic	The Self- Administered Comorbidity Questionnaire (validated questionnaire). Validated by medical records data.	69/404= 17.1% by medical records 76/404= 18.8% by questionnaire	NR	NR	NR	NR	NR	5/8
Holper ⁵⁴ (2010)	Germany and Switzerland	2 inpatient (47%) and 2 outpatient (53%) MS clinics/conv enience	May 2007- Feb 2008	Neurologist diagnosed: McDonald 2005 or Poser	SCQ	27/205 = 13.2%	NR	NR	NR	NR	NR	6/9

		sample of patients stratified to reflect MS forms										
Hopman ⁵⁵ (2007)	Canada/Ontario	MS Clinic of Kingston General Hospital, clinically definite MS, diagnosed for at least 12 months, MMSE \geq 24	September 2000-August 2001	Neurologist diagnosed: Criteria NR	Self-report	45/300 = 15.0%	NR	NR	NR	NR	NR	6/9
Jadidi ²⁸ (2013)	Sweden	M&H Co Database	1987-2009	ICD-8 340 ICD-9 340 ICD-10 G35	Administrative data codes	32/7,664 = 0.42%	NR	NR	NR	NR	NR	5/8
Kang ⁸ (2010)	Taiwan	NHIRD population, age \geq 15 years	2007	ICD-9-CM code 340	ICD-9-CM 401.1, 401.9, 402.10, 402.90, 404.10, 404.90, 405.11, 405.19, 405.91, 405.99,	144/898 = 16%	NR	NR	NR	NR	NR	4/8

					at least one hospitalization or two ambulatory claims							
Khan ⁹ (2007)	Australia/ Melbourne	MS database Royal Melbourne Hospital	Jan 2005-Feb 2005	Neurologist diagnosed: Poser and Paty	Self-report	9/62 = 14.5%	NR	NR	NR	NR	NR	6/9
LaVela ¹⁰ (2012)	United States	National cohort of Veterans with MS, members of veteran service organization	2003, 2004	Veterans Benefits Department confirmed	Telephone and mailed survey (Multiple Sclerosis- Health Care Questionnaire using questions similar to BRFSS)	533/ 1,142 = 46.7% (males only)	NR	46.7%	NR	NR	NR	4/8
Lindegar d ³² (1985)	Sweden	Native Swedes born 1911-1940 in Gothenburg	1970-1979	ICD 340, 341 inpatient records	ICD 400-404, inpatient records	Young males 2.5% Older males 5.7% Young females 0.0% Older females 4.3%	NR	Young males 2.5% Older males 5.7%	Young females 0.0% Older females 4.3%	NR	NR	4/8
Lu ³³ (2013)	Canada/ British Columbia	British Columbia MS database	Apr 1998- March 2009	Poser, McDonald 2005	Administrative Data “Hypertension	33/432= 8%	NR	NR	NR	NR	NR	6/8

					(pre-existing, gestational, or pre-eclampsia)”							
Marrie ³⁵ a (2008) Marrie ⁵¹ a (2011)	United States	NARCOMS Registry population (volunteers)	October 2006	Self-report	Online/Mailed Survey	2,664/8,844= 30.1% At MS Onset: 322/8,581 = 3.8% At MS Diagnosis: 688/8,581= 8.0%	NR	NR	NR	NR	NR	5/9
Marrie ³⁴ (2012)	Canada/ Manitoba	Entire Manitoba population	April 1, 1984- March 31, 2007	1984–1997 all cases with ≥7 hospital or physician claims for MS. 1998-2007 all cases with ≥3 hospital, physician or prescription claims for MS.	CCDSS ICD-9 401-405, ICD-10 110-133,115 ATC codes: C02 (anti-hypertensives), C03 (diuretics), C07 (beta-blockers), C08 (calcium channel blockers), and C09 (agents	NR	20.8% (19.1–22.5)	NR	NR	NR	NR	8/8

					acting on the renin-angiotensin system)							
Sheu ⁴⁴ (2013)	Taiwan	LHID 2000 Database of Taiwan, incident MS enrolled in registry of catastrophic illness, and age >18 years	Jan 2002-Dec 2009	ICD-9-CM code 340 and certified by neurologist (Poser)	LHID Database. Codes not specified	69/316= 21.8%	NR	NR	NR	NR	NR	5/8
Sun ⁵² (2013)	Taiwan	NHIRD Incident MS cases diagnosed 1997-2010	1997-2010	ICD-9-CM code 340	ICD-9-CM code 250	103/1292 = 7.97%	NR	NR	NR	NR	NR	5/8

Paz Soldan ⁴⁰ (2012)	United States/ Minnesota	All MS patients living in Olmsted County in 2000	2000	Poser	Medical Chart Review	96/201 = 47.8%	NR	NR	NR	NR	NR	6/8
Warren ⁴ (2009)	Canada	98% of community dwelling Canadian population, ≥12 years	2000/2001	Self-report. Interviews: In-person or by telephone	Interviews: In-person or by telephone Diagnosed by a health-care professional and had lasted or would be expected to last more than 6 months	17.0%	NR	NR	NR	NR	NR	5/9

NR: Not Reported, SPARCS: New York Department of Health Statewide Planning and Research Cooperative System, NMSS: National Multiple Sclerosis Society, NHIRD: National Health Insurance Research Database, NARCOMS: North American Research Committee on Multiple Sclerosis, LHID 2000 Database: Taiwan Longitudinal Health Insurance Database, BRFSS: Behavioral Risk Factor Surveillance System, SCQ: Self-administered Comorbidity Questionnaire.

a- Self-reported diagnoses of MS previously validated in random sample of study population against medical records and physician report; b – reported in another manuscript using the same study population