PREVALENCE OF ARTHRITIS AND RHEUMATIC DISEASES AROUND THE WORLD

A Growing Burden and Implications for Health Care Needs

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Executive Summary

'Arthritis and rheumatism' is a general term that represents many types of arthritis; osteoarthritis is the most common form. Data on the prevalence of arthritis and rheumatic diseases are necessary background information to understand the burden of disease and the potential need for health care for people with these diseases. Reporting of prevalence is challenging as it is based on different definitions of the disease (self-report, physician-confirmed diagnosis, etc.) and prevalence varies slightly by these definitions.

Data in this report represent the findings from the peer-reviewed literature. However, the paucity of data, particularly for Canada (only 7% of the included peer-reviewed studies), resulted in sourcing the grey literature. The World Wide Web was searched for population-based health surveys reporting data on arthritis and rheumatic conditions.

Key Messages

Arthritis and Rheumatism

- The prevalence of self-reported doctor-diagnosed arthritis and rheumatism in Canadian adults 15 years and older has increased from 13.4% to 17.6% from 1994 to 2002 according to National Population Health Survey and Canadian Community Health Survey (CCHS) data. In the most recent 2008 CCHS data, rheumatism was removed from the definition which resulted in a lower arthritis prevalence of 15.3% for the population aged 12 years and older.

- Prevalence of arthritis in 2008 is similar for Ontario (16.9%), Alberta (14.2%), and British Columbia (14.7%).

- Prevalence based on self-reported doctor-diagnosed arthritis in the United States (US) is 21.6% according to the National Arthritis Data Workgroup. This estimate is based on the 2003-2005 National Health Interview Surveys.

- The difference in Canada and the US is accounted for by the higher prevalence of inactivity and obesity in US women.

- Prevalence is 13.0% in the United Kingdom.

- Prevalence is 15.0% to 24.0% in Australia and New Zealand.

- Prevalence of arthritis and rheumatism in South American and Caribbean countries ranges from 23.8% to 56.0%.

- In all countries, prevalence was higher in females compared to males and prevalence increases with age.

Osteoarthritis (OA)/Degenerative Arthritis

- Approximately 10.0% of Canadians have OA.
- As demonstrated by Ontario data, prevalence varies by region and approximately 3.0% more women than men have OA.
- Prevalence of OA in the US ranges from 8.0% to 16.4%, is estimated at 12.5% in the UK, and is reported at approximately 8.0% to 13.0% in Australia, New Zealand, Belgium and the Netherlands.
- Physician-confirmed OA in third world countries is low with prevalence ranging between 2.3% to 11.3%.

Rheumatoid Arthritis (RA)

- The prevalence of RA in Canada is approximately 1.0%.
- US data based on the 2005 population estimates from the Census Bureau indicates prevalence of 0.6% in adults 18 years and older.
- Numerous studies around the world report prevalence just under 1.0%. However, First Nations people and population-based studies in Australia, New Zealand, and Netherlands seem to have slightly higher prevalence (2.0% to 4.0%).
- RA is more prevalent in females than males and with increasing age.

Ankylosing Spondylitis (AS)

- The prevalence ranges from 0.1% to 0.5% world-wide. In Canadian adults, as many as 1.0% is affected with AS and men develop AS three times more often than women.

Psoriatic Arthritis (PsA)

- The prevalence of PsA ranges from 0.1% to 0.4% in the US, Italy, Norway, and Iceland.

Gout

- In Canada, gout affects up to 3.0% of adults. Men are four times more likely than women to develop gout. Prevalence of gout ranged in the literature. Indigenous people seem to have slightly higher prevalence (4.0% to 5.0%). Many other studies world-wide report a lower prevalence (1.0% or less).

Other Arthritis and Auto-Immune Diseases

- The prevalence of other arthritis and auto-immune diseases such as lupus, scleroderma, Sjogren's syndrome each ranges from 0.1% to 0.5%.

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1.0 Introduction

Arthritis and other rheumatic conditions are among the most prevalent chronic conditions in Canada and other parts of the world. They include many types of arthritis and autoimmune diseases that affect the bones and joints and other components of the musculoskeletal (MSK) system causing morbidity, disability with resultant, health care utilization. Arthritis is perceived as a disease of the aged, but is prevalent in both men and women younger than 65 years. Arthritis and rheumatic conditions pose a major economic and health burden to society. Arthritis affects more than 4.2 million Canadians or 16.0% of the population over the age of 15 years [1]. Perrucio et al. (2006) approximate that the prevalence of arthritis in Canada will be greater than previously estimated affecting between 21.0% to 26.0% of the population by 2021 [2]. With the aging of the population, this burden is expected to increase impacting the lives of individuals and the population as a whole.

A review of literature was conducted to examine how widespread arthritis and rheumatic conditions are within Canada as well as other parts of the world. Understanding how many people have arthritis and other rheumatic conditions is the first step in assessing the extent of burden and potential concerns regarding health care needs and health service requirements. This report presents the prevalence estimates for arthritis, osteoarthritis (OA), rheumatoid arthritis (RA) as well as other rheumatic conditions including ankylosing spondylitis (AS), psoriatic arthritis (PsA), lupus/systematic lupus erythematosus (SLE), scleroderma/systematic sclerosis (SSc), gout, Sjogren's syndrome (SS) and Still's disease.

2.0 Purpose and Objectives

As part of a program of research to document gaps and needs in existing health care services and health care providers for people with arthritis in Ontario, we conducted a literature review to examine the prevalence of arthritis and related conditions. Our specific objectives were to describe:

- the prevalence of arthritis and rheumatic conditions and its associated risk factors within a Canadian context.

- the prevalence of arthritis and rheumatic conditions and its associated risk factors in other countries, states or nations (e.g., United States of America (US), United Kingdom (UK), Europe, Asia, South America, etc.)

3.0 Methods

3.1 Peer-Reviewed Literature Search Strategy

A literature search was conducted using Ovid Medline, Ovid EMBASE and EBSCO CINHAL to identify studies of prevalence of arthritis and other related conditions. The literature search was executed between Apr to Sep 2009. The basic limits applied to each search were: 1980-2009, English, and adults (18 or 19 yrs and older, depending on the database). Chronic diseases and MSK pain and conditions were included in the spectrum of disease search terms in order to be comprehensive in identifying all potential publications related to arthritis and rheumatic illnesses. Search strategies for the three databases are in Appendix A. The search strategy was developed in Medline by an experienced librarian in collaboration with the research team and modified as required for other databases.

Two team members (MM and RW) evaluated a sample of 100 retrieved studies for eligibility based on a set of inclusion/exclusion criteria. The bibliographic record (i.e., title, authors, keywords, abstract) was used to determine eligibility. However, when a record did not contain sufficient information, the full article was reviewed. Disagreements were resolved by consensus. Once 80% consensus was reached for a sample of 100 citations, only one reviewer (MM) examined the remaining records for eligibility. A data abstraction form was developed by the research team and pilot tested using a randomly selected set of ten eligible papers. Information was extracted by a primary reviewer (MM or RG) and a sample set of ten were verified by a second reviewer (AD). Disagreements were resolved by consensus.

Any articles found with secondary data, were included as part of the inclusion/exclusion criteria. However, the primary studies were pulled, where available, and referenced for data abstraction. Publications pertaining to children and adolescents (juvenile arthritis), solely pain or pain syndromes, solely examining prevalence of radiographic OA, hip fracture, and arthritis in a specific group of patients (e.g., OA in diabetic patients) were excluded. Other relevant articles were identified through reference lists and personal communication. After removing duplicate materials and screening for relevancy to the objectives, structured data abstraction was conducted. Data abstraction included crude prevalence for arthritis and related conditions.

The total number of articles retrieved and reviewed is found in Appendix B. A total of 16 475 citations were retrieved from the above databases. After applying the inclusion/exclusion criteria 256 articles were retrieved and abstracted. Data were pulled from 7 abstracts where the paper was not readily available.

3.2 Grey Literature Search Strategy

Canada, the United States (US), Britain (UK), Australia and other English speaking countries were identified by the research team as relevant countries to search for population-based health surveys that document arthritis prevalence. Known sources such as the Canadian Community Health Survey (CCHS) from the Statistics Canada web site and the National Health Interview Survey (NHIS) from the Centres for Disease Control and Prevention web site were found on the World Wide Web. The Google search engine was used to identify additional population-based health surveys from other countries by entering the specific country name (e.g., Australia) with health survey as key words. Governmental and/or statistic bureau web sites were found and a detailed search on each web site identified data sources of arthritis prevalence (Appendix C). The most recent summary data files and/or reports were downloaded. Web sites were accessed between February and March 2010.

4.0 Results

Data analyses and abstraction were restricted to the arthritis and related conditions detailed below. Although data abstraction occurred for articles relating to general chronic diseases, MSK conditions and MSK pain, these publications were excluded from this analysis. 166 peer-reviewed studies were used in this analysis (6 were abstracts only). Three of the included articles were identified through the investigators on the research team, one article was published in year 2010 [3] and two articles were reviews [4,5]. Summary tables of the results (demographics of the included articles and crude prevalence are found in Appendix D). Only the crude prevalences of arthritis and related conditions are reported for the peer-reviewed literature from Canada, US, UK, Europe, Asia, South America, Africa, Central America, and the Middle East.

Eleven web sites were accessed and prevalence data on arthritis and related conditions were retrieved from 14 population-based health surveys identified on these sites. Crude, sex- and/or age-specific prevalence in Canada (Appendix E) and other parts of the world: US, UK, Australia, New Zealand,

Ireland, Belgium, and Netherlands (Appendix F) were summarized from various web-based sources. Since Canada (i.e., Ontario (ON), Alberta (AB) and British Columbia (BC)) is the focus of this research project, crude prevalence of arthritis by sex and age groupings were abstracted for all of Canada (provinces & territories), each of the three provinces (ON, AB, BC), and regions within the three provinces (e.g., health networks/regions/areas) (Appendix E).

Data abstraction tables for the peer-reviewed literature are found in Appendix D and these tables have been denoted as Table 1D, 2D, 3D, etc. Similarly data abstraction tables for the grey literature are found in Appendix E and F and these tables have been denoted as Table 1E, 2E, 3E, etc. for the Canadian data and Table 1F, 2F, 3F, etc. for data on the other countries included in this paper.

4.1 Arthritis and Rheumatic Diseases

Prevalence data for arthritis and rheumatic disease from the peer-reviewed literature are found in Appendix D (Tables 1D & 2D, respectively). Grey literature summary tables are found in Appendix E and F (Tables 1F to 5F).

CANADA

In Canada, based on self-reported health professional diagnosed arthritis, the crude prevalence from the National Population Health Survey (NPHS) and Canadian Community Health Survey (CCHS) was 13.4% in 1994 [2,6], 14.5% in 1996 [2,6], 16.0% in 1998 [2,6] and 2000 [2], and 17.6% in 2002 [2]. The national prevalence in the 1991 General Social Survey (GSS) was at 20.8% [7]. In 2000-2001, data from 286 regions across Canada revealed a prevalence of arthritis of 16.0%, with significant differences across regions ($p<0.001$) [8], ranging from 12.0% in Quebec to 23.3% in Nova Scotia [9]. In Wang & Badley (2003), prevalence rates are reported by province from two sources, the NPHS and GSS [7]. The most recent 2008 CCHS indicated self-reported health professional diagnosed arthritis (RA and OA excluding fibromyalgia) of 15.3% for the population aged 12 years and over [10]. In all of Canada, arthritis prevalence was higher in females (18.5%) than in males (12.0%) [Table 1E] and increased with age from 2.9% (20-34 years) to 43.0% (65 years and older) [Table 2E] [10].

The prevalence estimates of arthritis in ON, AB, and BC were similar and are presented below.

Table 1: Prevalences of Arthritis in ON, AB, and BC from Various Canadian Surveys

	CCHS (2008)** [10] %	CCHS (2005)* [11] %	NPHS (1996)* [7] %	NPHS (1994)* [7] %	GSS (1991)* [7] %
Ontario	16.9	18.0	14.1	14.3	21.2
Alberta	14.2	15.7	13.2	13.4	18.8
British Columbia	14.7	16.3	13.0	12.6	21.9

** 12 years and older

* 15 years and older

Self-reported physician-diagnosed prevalences of arthritis were documented for ON by Local Health Integration Networks (LHINs) [Table 3E], for AB by Health Regions [Table 5E], and for BC by Health Service Delivery Areas [Table 7E]. In the ON LHINs, prevalence ranged from 10.9% (Central West) to 25.2% (South East) [10]. In the AB Health Regions, prevalence ranged from 10.7% (Calgary) to 21.8% (Aspen) [10]. In the BC Health Service Delivery Areas, prevalence ranged from 10.7% (Richmond) to 22.1% (North Vancouver Island) [10]. Sex- and age-specific national (Table 1E & 2E), provincial (Table

1E & 2E), and regional (Table 3E to 8E) prevalence estimates are found in Appendix E. Generally, arthritis prevalence increased with age and was always higher among women than in men.

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In Badley and Ansari (2010), using the 2002/2003 Joint Canada/US Survey of Health, self-reported health professional diagnosed arthritis for the population aged 18 years and older was 16.9% in Canada and 18.7% in the US [3]. Using the same age group, another US source, the 2003-2005 National Health Interview Surveys (NHIS), reported the best available estimate of self-reported doctor-diagnosed arthritis as 21.6% or 46.4 million [4,12-14]. Prevalence was higher in females (25.4%) compared to males (17.6%) in every age grouping [Table 1F & 2F] [12-14]. The prevalence of arthritis from individual, peer-reviewed studies using the NHIS (years ranging between 1989 and 2005) was also approximately 22.0% [15-18] with two studies reporting about 15.0% [19,20]. The most recent BRFSS survey (2007), which included the 50 States, District of Columbia, and territories reported an arthritis prevalence of 27.5%, which also increased with age (5.4% to 57.0%) and was higher in females compared to males (31.2% vs 23.4%) [Table 1F & 2F] [13,21,22]. One study found in the literature that used the 2003 Behavioural Risk Factor Surveillance System (BRFSS) indicated a state median of 27.0% for self-reported physician-diagnosed arthritis [23]. Similarly, other studies reported individual state arthritis prevalence rates ranging from 17.9% (Hawaii) to 37.2% (West Virginia) [23-26] and in the territories ranging from 16.4% (Guam) to 24.4% (Puerto Rico) [23]. Additional US population-based studies of specific cohorts found self-report of arthritis ranging from 12.7% in the Southwest American Indians to 22.2% in the Alaska Natives [27] and increased to 40.8% for arthritis or rheumatism in older Mexican Americans [28].

OTHER COUNTRIES

No arthritis prevalence studies in the UK were found in the literature search. The 2008 Welsh Health Survey obtained from the World Wide Web reported 13.0% of all adults, 16.0% of females, and 10.0% of males aged 16 years and older being currently treated for arthritis [29,30]. The Health Survey for England, with an augmented sample of older adults aged 65 years and older in 2005, reported 47.0% of older females and 32.0% of older males who have or have had arthritis including OA and rheumatism [Table 1F] [31]. In both surveys [29-31], arthritis prevalence increased with age [Table 3F & 4F].

The grey literature search identified population-based studies in Australia (National Health Survey (NHS) [32,33], South Australian Monitoring and Surveillance System (SAMSS) [34-37], Health Omnibus Survey [37-40], and Health Monitor [37,41,42]) with self-reported physician-diagnosed arthritis ranging from 15.2% to 24.3%. Similarly, prevalence of self-reported arthritis in three Australian studies found in literature was 22.2% to 23.0% [43-45]. One other population-based survey with a comparable arthritis definition was identified on the National Research Bureau of New Zealand. The New Zealand Health Survey (NZHS) reported arthritis prevalence of 16.3% for females, 13.0% for males, and 14.8% for all adults aged 15 years and older [Table 1F] [46-48]. The prevalence of arthritis increased rapidly as age increased for both the Australian and New Zealand Health Surveys [Table 5F] [32,33,46-48].

In the peer-reviewed literature, one study examined countries of South America, the Caribbean Islands, and some of the US states and found a prevalence of self-reported arthritis or rheumatism ranging from 23.8% (in Mexico City, Mexico) to 56.0% (Havana, Cuba) [49]. The prevalence of self-reported rheumatic diseases confirmed by physicians in population-based studies (Greece [50], China [51], India [52], Bangladesh [53], and Pakistan [54]) ranged from a low of 14.8% in Pakistan to a high of 27.4% in Greece.

4.2 Osteoarthritis (OA)

Data from peer-reviewed literature for OA prevalence are found in Appendix D (Table 3D). Some papers examining arthritis and rheumatic diseases provided OA prevalence rates and, when available, these rates were summarized from Appendix D (Tables 1D & 2D, respectively). Grey literature summary tables for OA are found in Appendix F (Table 1F & 6F).

CANADA

Two Canadian studies were identified reporting the prevalence of OA in peer-reviewed literature. One study of OA and associated disorders in the BC Medical Services Plan between 1991/92 – 2000/01 found an overall prevalence of 10.8% in 2001 [55]. The other study of an Inuit sample from the North West Territories identified a physician-diagnosed OA prevalence at 14.7% in 1982 [56]. Since Canadian peer-reviewed literature on the prevalence of OA is sparse, additional grey literature sources were sought. In Arthritis in Canada (2003), Badley and Desmeules reported that OA is the most common type of arthritis, affecting an estimated 10.0% of Canadian adults [57]. Additional data for health regions within ON was available from the Institute for Clinical and Evaluative Sciences (ICES) web site. In 2006/07, there was little variation in the crude prevalence rates of treated OA among the LHINs ranging from 7.5% (Waterloo Wellington LHIN) to 12.1% (Erie St. Clair LHIN) [see Table 2 below] [58]. In all regions the prevalence was about 3.0% higher for women than men [Appendix G].

Table 2: Crude Prevalence for Degenerative Joint Disease (OA) by Local Health Integration Networks (LHINs) in ON for 2006/2007

LHIN	Population	Cases	Crude Rate
North West	184,354	16,363	8.9
North East	447,630	46,766	10.5
North Simcoe Muskoka	317,271	33,599	10.6
Champlain	911,598	88,613	9.7
South East	372,171	43,537	11.7
Central East	1,123,347	106,791	9.5
Central	1,212,555	106,056	8.8
Toronto Central	929,664	79,545	8.6
Mississauga Halton	795,347	71,585	9.0
Central West	564,622	48,998	8.7
Hamilton Niagara Haldimand Brant	1,035,041	114,757	11.1
Waterloo Wellington	520,647	38,816	7.5
South West	700,716	70,220	10.0
Erie St. Clair	488,834	58,898	12.1

- ***Definition:*** Discharge Abstract Database (DAD) and Ontario Health Insurance Plan (OHIP) were mapped to the Expanded Diagnosis Cluster: degenerative joint disease (MUS03) to calculate "treated" prevalence rates for fiscal year 2006/07.
- ***Population*:** All population estimates are for individuals aged 20 years and older. The source of population counts used was the Registered Persons Database (RPDB) and these counts were used as the denominators to calculate rates.
- ***Cases***: Number of cases of the specified chronic condition (new and existing; identified using the Johns Hopkins ACG Case-Mix System) in a specified population for a given year.
- ***Crude rate***: It is expressed 'per 100' individuals.

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Three studies in the US peer-reviewed literature had a prevalence of self-reported physician-confirmed OA ranging from 8.0% to 16.4% [59-61]. These studies had data collection years between 1983 and 1997 and included only those 45 years and older. No population-based surveys were identified in the grey literature that included prevalence data for OA.

OTHER COUNTRIES

One study in the UK peer-reviewed literature using 1998-2000 data from general practice computer records estimated a prevalence of physician-diagnosed knee OA of 12.5% in the general population aged 45 years and older [62]. An earlier study, The Highland Arthritis Prevalence Study (1986/87), in the east and west coast of Great Britain, examined chronic arthritis in four geographical areas and found a physician-diagnosed prevalence of OA at 6.5% [63].

In grey literature, two of four Australian [32-37] population-based surveys, one from New Zealand [46-48], one for Belgium [64-66] and one from the Netherlands [67] provided overall prevalence of OA. Despite differences of arthritis definitions between some surveys, the prevalence of self-reported or self-report of physician-diagnosed OA ranged from 7.8% to 13.1%. For all surveys, OA was more prevalent in females than males (NHS: 9.7% vs 5.9%; SAMSS: 13.9% vs 8.1%; NZHS: 10.1% vs 6.5%; QNHS: 4.0% vs 2.0%; HIS: 17.4% vs 8.5%; POLS: 14.0% vs 7.5%, respectively) [Table 1F] and increased with rising age [Table 6F].

Similar results were found in the Australian [44,45] and European (Netherlands[68], Italy [69], Norway [70], Iceland [71], Spain [72], and Sweden [73,74]) peer-reviewed literature. The prevalence of self-reported physician-diagnosed OA, including some studies that indicated a specific site (knee, hip, and/or hand), ranged from 7.7% to 41.8% in population-based studies and ranged from l.7% to 10.8% in clinical samples. Two Asian studies (China [75] and Japan [76]) found a self-report of symptomatic hip OA at 1.0% and symptomatic knee OA at 21.2%. In other Asian studies (China [51], Vietnam [77], Thailand [78], India [52], and Bangladesh [53]) self-reported and/or physician-diagnosed OA ranged between 4.1% and 11.3%. The prevalence of self-reported physician-confirmed diagnosis of OA ranged between 2.3% and 4.1% in studies from Brazil [79], Mexico [80], and Middle East (i.e., Iran, Saudi Arabia, Pakistan) [54,81,82].

4.3 Rheumatoid Arthritis (RA)

Data on the prevalence of RA from the peer-reviewed literature are found in Appendix D (Table 4D). Some papers examining arthritis and rheumatic diseases provided RA prevalence rates and, when available, these rates were summarized from Appendix D (Tables 1D & 2D, respectively). Grey literature summary tables for RA are found in Appendix F (Tables 1F & 7F).

CANADA

Only one peer-reviewed study was found for RA prevalence in Canada; however, this study examined rheumatic conditions in the North West Territories [56]. The study reported physician-diagnosed RA of 0.6% from medical review of a sample of Inuits and through computerized data from the Manitoba Health Services Commission for out-of-province patients in 1982. In Arthritis in Canada (2003), Badley and Desmeules reported that approximately 1.0% of Canadian adults were affected with RA, with at least twice as many women were affected as compared to men [57].

UNITED STATES OF AMERICA

The prevalence of RA, confirmed by the 1987 American College or Rheumatology (ACR) criteria, ranged from 2.03% to 2.72% in both sexes, 60 years and older from studies of the US population-based 1988-1994 National Health and Nutrition Examination Survey (NHANES-III) [83,84]. An older study sampling Pima and Papago Indians, in a community within Arizona, found a prevalence of active and inactive RA at 3.45% [85]. Other peer-reviewed studies, with years of data collection ranging from 1950-1985, found that 1.02% to 1.07% of Americans who visited heath care providers had RA [86,87]. Using the 1995 Rochester, Minnesota age/sex-specific prevalence estimates and the corresponding 2005 population estimates from the Census Bureau, the National Arthritis Data Workgroup, estimated that 0.6% American adults age 18 years and older have RA [4]. No RA prevalence data was available from the population-based surveys accessed on the World Wide Web.

OTHER COUNTRIES

In grey literature, two of four Australian [32-37] population-based surveys and one from New Zealand [46-48] provided prevalence rates for RA. The prevalence of self-reported physician-diagnosed RA ranged from 2.1% to 3.5%. However, a population-based survey in Belgium found a prevalence of as high as 6.0% [64-66]. In the Netherlands, the prevalence of chronic arthritis (includes RA and rheumatism) was 4.1% [67]. For all surveys, RA was more prevalent in females than males (NHS: 2.6% vs 1.6%; SAMSS: 3.6% vs 2.7%; NZHS: 4.3% vs 2.7%; QNHS: 4.0% vs 3.0%; HIS: 8.1% vs 3.9%; POLS: 5.5% vs 2.6%, respectively) [Table 1F] and generally increased with rising age [Table 7F]. Similarly, in a peer-reviewed study, 4.0% of the population reported having RA from the 1995 South Australian Health Omnibus Study [44].

Other peer-reviewed literature in the UK and Australia reported lower RA prevalence estimates. A population-based study of 11 general practices, in the same setting where the Norfolk Arthritis Register is set, data was extrapolated to the adult population of the UK and yielded an estimated overall RA prevalence of 0.81% [88]. Two other studies also sampling from general practices in Scotland, UK found a prevalence of physician-diagnosed RA ranging from 0.55% to 0.69% [63,89]. In Australia, 1.0% of a sample from general practice clinics reported physician-diagnosed RA [45].

Population-based studies and clinical samples in European countries (Sweden [73,74,90], France [91], Italy [92], Norway [93,94], Chez Republic [95], Hungary [96], Lithuania [97], Greece [98]) indicated a prevalence of self-reported and/or physician-confirmed RA ranging between 0.33% and 0.92%. These studies have years of data collection from 1985 to 2004. Some of the studies used the American Rheumatology Association (ARA) criteria for the diagnosis of RA [90,94,96,98].

In parts of Asia (China [51], Japan [99], Hong Kong [100], Vietnam [77], India [101], Bangladesh [53], Indonesia [102], and Thailand [78]), the prevalence of self-reported RA, confirmed by a physician via 1961 Rome, 1987 ACR and/or 1987 ARA criteria, ranged between 0.12% to 0.75%. These were population- or community-based studies. Population- and clinic-based studies were also included from Brazil [79], Argentina [103], Mexico [80], Africa [104], and the Middle East [54,105-109] and these studies reported similar prevalence rates ranging from 0.14% to 0.55%.

4.4 Ankylosing Spondylitis (AS)

Prevalence data from the peer-reviewed literature for AS are found in Appendix D (Table 5D). Some papers examining all rheumatic diseases and spondyloarthropathies provided AS prevalence rates and, when available, these rates were summarized from Appendix D (Tables 2D & 12D, respectively). No grey literature summary tables exist for AS prevalence.

CANADA

No Canadian literature was found for AS prevalence except for one study examining rheumatic conditions in the North West Territories [56]. This study reported physician-diagnosed AS of 0.2% from medical review of a sample of Inuits and through computerized data from the Manitoba Health Services Commission for out-of-province patients in 1982. A chapter in a report, Arthritis in Canada (2003), indicated as many as 1.0% of Canadian adults were affected with AS with men developing AS three times more often than women [57].

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Only one US study was found in this literature search that reported prevalence for AS. Data from rheumatic disease registries identified a prevalence of AS at 0.4% for Eskimo residents in Alaska [110].

OTHER COUNTRIES

In a study of residents living in a region in central Italy, sampled from registration lists of general practices, found that AS was the second most common spondyloarthropathy with a self-reported and rheumatologist-diagnosed prevalence of 0.37% [111]. Similarly, administrative data from the University Hospital of Northern Norway, extracted between 1960 and 1993, found a period prevalence for primary AS at 0.26% and primary/secondary AS at 0.31%. However, two Norwegian population-based studies had higher self-reported AS prevalence rates of 1.1% to 1.8%; [112,113]. Diagnosis was confirmed by a physician via the New York criteria (1966/1973). A Finnish study reported clinically significant AS of 0.15% for adults age 30 years and older, who underwent a radiographic exam [114]. A study in Turkey reported that 0.49% of adults 20 years and older had AS and diagnosis was confirmed by a rheumatologist via the modified 1984 New York criteria and the 1991 European Spondyloarthropathy Study Group (ESSG) criteria [115]. Two Asian studies were included; one in China and the other in Japan. The former study examined rheumatic conditions in adults residing in several communities within Shanghai and found a self-reported AS prevalence of 0.12% [51]. The latter study examined patients with all spondyloathropathies who attended institutions for medical care and found an overall prevalence of less than 0.01% [116].

4.5 Psoriatic Arthritis (PsA)

Prevalence data from the peer-reviewed literature for PsA are found in Appendix D (Table 6D). One study examining rheumatic diseases and two studies examining spondyloarthropathies provided AS prevalence rates and are summarized from Appendix D (Tables 2D & 12D, respectively). No grey literature summary tables exist for PsA prevalence.

CANADA

No studies were found reporting the prevalence of PsA in the adult population residing in Canada.

UNITED STATES OF AMERICA

Data from the National Psoriasis Foundation survey (Nov-Dec 2001) indicated that 0.25% of adults in the US population reported a physician-diagnosis of PsA [117]. A second study was identified of Eskimo residents in Alaska, who were sampled from rheumatic disease registries, and found a prevalence of PsA of less than 0.1% [110]. A third study that was examined only provided the prevalence of PsA in cases who have been diagnosed with psoriasis [118]. No other population- or clinic-based studies were found reporting the prevalence of PsA.

OTHER COUNTRIES

In a study of residents living in a region in central Italy, who were taken from the registration lists of general practices, found that PsA was the most common spondyloarthropathy with a self-reported prevalence of 0.42% [111]. Using an administrative database in Norway (1999-2000) and an electronic registry of hospital patients and database of patients with verified psoriasis in Iceland (1981-2001), the estimated population prevalence of PsA ranged from 0.098% to 0.195% [119,120]. One study in Yarrabah region of Australia, with the majority of residents being Aboriginal and Torres Strait Islanders, found a PsA prevalence of 0.5% [121]. All other studies identified in Germany [122,123], Italy [124], and Iran [125] reported prevalence of PsA in clinical samples who have been confirmed with a diagnosis of psoriasis.

4.6 Lupus/Systematic Lupus Erythematosus (SLE)

Prevalence data from the peer-reviewed literature for SLE are found in Appendix D (Table 7D). Some papers examining all rheumatic diseases provided SLE prevalence rates and, when available, these rates were summarized from Appendix D (Tables 2D). No grey literature summary tables exist for SLE prevalence.

CANADA

Two Canadian peer-reviewed studies were identified in this literature search. These two studies, using databases (physician billings, hospitalizations, and/or regional arthritis center) and/or medical records, found a prevalence of SLE ranging between 22.1 and 51.0 cases per 100 000 persons (0.022% to 0.051%) [126,127]. Similarly, Badley and Desmeules (2003) reported in the Arthritis in Canada (2003) that SLE affects 0.05% of Canadian adults and is 10 times more prevalent in women than men [57].

UNITED STATES OF AMERICA

In the NHANES III (1988-1994), the prevalence was 241 per 100 000 (0.241%) for self-reported physician-diagnosed SLE and 53.6 per 100 000 (0.053%) for self-reported and treated SLE [128]. The overall prevalence in 1991-2001 of physician-diagnosed SLE (definite and incomplete) in persons receiving inpatient/outpatient care in the Marshfield Epidemiological Study Area was 130 per 100 000 (0.130%) [129]. A study that included three different Indian groups who were sampled from the Patient Care Information System found physician-diagnosed SLE (according to the 1982 ARA criteria) of 91.7 per 100 000 (0.092%) [130].

OTHER COUNTRIES

Various medical sources and patient registries were used in studies within UK to identify cases of SLE. Confirmed cases of SLE via the 1982 ACR/ARA criteria ranged from 20.0 to 27.7 per 100 000 or prevalence of 0.020% to 0.028% (years <1993) and was at the highest of 40.7 per 100 000 or prevalence of 0.041% (year 1998) [131-135]. In England and Wales, data from the National Study of Morbidity Statistics from General Practice (1981/82) identified only females cases of SLE resulting in a period prevalence of 6.5 cases per 100 000 (0.007%) [136].

Various retrieval sources were also used to identify SLE patients who were living in Europe between 1972 and 2004. Prevalence of SLE according to the 1971/1982 ARA criteria was estimated to be 16.2 per 100 000 (0.016%) (in Lithuania [137]); 21.7 to 39.5 per 100 000 (0.022% to 0.039%) (in Demark [138], Finland [139], Ireland [140], Spain [141], Sweden [142], Greece [143]); and 47.6 to 57.9 per 100 000 (0.048% to 0.058%) (in Netherlands [144], Norway [145], Italy [146]).

Studies from other parts of the world, sampling from households (Brazil [79], Pakistan [54], Saudi Arabi [147]), village registers (China [148]), and private practices, public hospitals or outreach clinics (Australia [149]), identified physician-confirmed SLE ranging from 19.3 to 98.0 per 100 000 (0.019% to 0.098%). No cases of SLE were found in adults residing in households located in certain rural and urban localities of Jammu, India [52]. A study in Puerto Rico reported a higher SLE prevalence of 159 per 100 000 inhabitants (0.159%); however, this study included all insurance claims that were submitted in 2003 by health care providers (physicians, dentists, labs, pharmacies and hospitals) with ICD-9 code indicating SLE.

4.7 Scleroderma/Systemic Sclerosis (SSc)

Prevalence data from the peer-reviewed literature for Scleroderma/SSc are found in Appendix D (Table 8D). No grey literature summary tables exist for SSc prevalence.

CANADA

Only two Canadian studies were identified in this literature search, one in Quebec and the other in Ontario, reporting a prevalence of Scleroderma/SSc. In Quebec, using physician billing and hospitalization databases, the prevalence of SSc in 2003 was estimated to be 4.43 per 10 000 (0.044%) [150]. A 2002 study of SSc in rheumatology outpatient practices in South western Ontario (Windsor, London, Sarnia, Woodstock) found a prevalence ranging from 0.71 to 2.8 per 10 000 (0.007% to 0.028%) [151].

UNITED STATES OF AMERICA

A study using two US datasets with patient-level medical and drug claims found SSc prevalence ranging between 0.03% and 0.05% [152]. However, a random sample from the general population in the state of South Carolina (The Carolina Health Survey) found self-reported physician-confirmed (according to the 1980 ARA criteria) prevalence of SSc ranging between 1.9 and 7.5 per 10 000 (0.019% to 0.075%) and scleroderma spectrum disorders ranging between 6.7 and 26.5 per 10 000 (0.067% to 0.265%) [153].

OTHER COUNTRIES

In the UK, the prevalence of physician-diagnosed scleroderma/SSc (from various medical sources) ranged from 0.31 to 0.89 per 10 000 (0.003% to 0.009%) [154,155]. Studies from Australia [156,157] and Europe (Iceland [158], Greece [159], France [160], Italy [161], Estonia [162]) reported a prevalence of SSc that ranged from 0.71 to 3.50 per 10 000 inhabitants (0.007% to 0.035%). Most diagnoses were confirmed according to the 1980 ARA/ACR and/or 1988/2001 LeRoy & Medsger criteria. Also, the above samples were from medical or death registers, practices, clinics or other medical sources except for the random sample generated from the resident's registrar in Estonia. This study in Estonia also estimated the prevalence of scleroderma spectrum disorders in the general population to be 22.8 per 10 000 (0.228%) [162]. The final study included in this review was from Tokyo, Japan. The prevalence of SSc meeting the 1980 ARA criteria ranged between 0.2 to 0.5 per 10 000 (0.002% to 0.005%) [163].

4.8 Sjogren's Syndrome (SS)

Prevalence data from the peer-reviewed literature for SS are found in Appendix D (Table 9D). No grey literature summary tables exist for SS prevalence.

CANADA AND UNITED STATES OF AMERICA

No Canadian or US population- or clinic-based studies on the prevalence of SS among adults were found in this literature search.

OTHER COUNTRIES

In Manchester, UK, a study of individuals randomly selected from a population register from a local general practice reported an overall prevalence of SS at 3.5% [164]. In European countries (Slovenia and Norway), the overall estimated prevalence of SS in clinical samples ranged from 0.2% to 3.4% [165]. Diagnosis of SS in these two studies was based on the European classification criteria (ECC) from 1993 or 1996. In other parts of the world (China and Turkey), the prevalence of SS ranged from 0.21% to 1.56% depending on the criteria used to diagnose SS (Copenhagen criteria, San Diego criteria, ECC or American-European Consensus Classification Criteria) [166-168]. Rates in Mexico varied depending on whether primary or secondary SS (2.7% vs 10.7%, respectively) were being assessed with an overall minimum prevalence in the total population of 13.3% [169]. This study randomly selected ambulatory patients from a tertiary care center where most patients are admitted or referred for specialized care due to complex rheumatic diseases.

4.9 Gout

Prevalence data from the peer-reviewed literature for gout are found in Appendix D (Table 10D). Some studies examining rheumatic conditions reported prevalence of gout; these results are found in Table 2D. In Table 4D, one study reported the prevalence of gout [95]. Grey literature summary tables for gout are found in Appendix F (Tables 1F & 8F).

CANADA

No Canadian studies on the prevalence of gout were identified in the peer-reviewed literature. In Arthritis in Canada (2003), Badley and Desmeules reported that gout affects up to 3.0% of Canadian adults. Men are four times more likely than women to develop gout [57].

UNITED STATES OF AMERICA

No studies from the US reporting the prevalence of gout were identified from the peer-reviewed or grey literature.

OTHER COUNTRIES

Only one population-based survey was identified from the World Wide Web that reported prevalence of gout. This survey was accessed from the National Research Bureau in New Zealand. The NZHS indicated that 1.3% of adults 15 years and older have gout. Gout was more prevalent in males (2.4%) when compared to females (0.3%) [Table 1F] [46-48]. Generally, the prevalence of gout increased with age, but was highest in the 55-64 years age group [Table 8F] [46-48].

International studies on the prevalence of gout were found in the peer-reviewed literature. The prevalence of physician-diagnosed gout identified from administrative databases in the UK and/or Germany was 1.4% in 2000-2005 [170,171]. Two older studies in Scotland, UK examining rheumatic diseases found a prevalence of physician-diagnosed gout at 0.26% [89] and 0.34% [63] through record review. Similarly, the prevalence of gout was 0.3% in population-based patient registers of rheumatologists and specialists in the Czech Republic [95].

Other peer-reviewed studies were found in New Zealand, Australia, Asia, Mexico, and the Middle East. In New Zealand, the cumulative prevalence of self-reported gout, with diagnosis confirmed by a physician according to the 1977 ARA criteria, was 4.7% for persons 15 yrs and older of the Maori of the Arawa and Tuhoe tribes [172]. A similar prevalence of 3.8% was found in the Yarrabah region of Australia, where the majority living in this region are Aboriginals or Torres Strait Islanders [121]. The prevalence of self-reported but confirmed diagnosis of gout, via clinical tests, was 11.7% in Ho-Ping County aborigines 18 years and older (Taiwan) [173]. A lower prevalence of 0.8% was reported in Javanese males and females 15 years and older (Indonesia) [174]. Diagnosis was confirmed by physician using the 1966 New York criteria and 1977 ARA criteria. Other studies examining rheumatic conditions found a very low prevalence of gout ranging from 0.14% to 0.34% in Pakistan [54], Vietnam [77], Thailand [78], Mexico [80], and China [51].

4.10 Other Rheumatic Conditions

Several studies reported prevalence of soft tissue rheumatism which ranged between 1.9% and 3.4% (Pakistan [54], Bangladesh [53], Vietnam [77]) with a high of 7.4% (Australia [121]). The latter study included an aboriginal sample. Only two studies were identified in this literature search on the prevalence of adult Still's Disease from Norway and Japan. The estimated prevalence from patient records registered at the University Hospital of Northern Norway in 1990 was 3.4 per 100 000 (0.003%), in 1995 was 4.7 per 100 000 (0.005%), and in 2000 was 6.8 per 100 000 (0.007%) [175]. Random sampling from a registry of all patients treated at one of the departments of internal medicine in hospitals throughout Japan reported adult Still's disease ranging from 0.73 and 1.47 per 100 000 population (0.00073% to 0.00147%) in males and females, respectively [176]. Data for Still's disease prevalence are found in Appendix D (Table 11D).

5.0 Discussion

The prevalence of arthritis, in general, based on self-report of a physician diagnosis ranges from approximately 13.0% to 28.0% in the developed world [2-4,6-8,10-27,29,30,32-48,57,64-67,77,177-180]. The most recent 2008 survey data from Canada revealed an arthritis prevalence of 15.3% for the population aged 12 years and over. In 2000-2001, data from 286 regions across Canada, revealed a prevalence of arthritis of 16.0% for adults 15 years and older. The 2008 data are slightly below the 17.6% based on the CCHS data 2002-2003 for adults 15 years and older, but there was also a definitional change to the survey during 2007 that likely accounted for the slightly lower prevalence. In the US, the best available estimate of arthritis among adults age 18 years and older was 21.6%. However, using common terminology (2002/2003 Joint Canada/US Survey of Health), the prevalence of self-reported health professional diagnosed arthritis was 16.9% in Canada and 18.7% in the US for adults aged 18 years and older. On a national level, comparative data from Canada and the US indicate that the higher prevalence in the US can be accounted for by higher rates of obesity [3]. The prevalence ranges from 17.9% to 37.2% across US states [23] and Australia states report prevalence ranging from 15.2 to 24.3% [32-42]. Consistently, data show increasing prevalence with age and females are more likely than males to report doctor-diagnosed arthritis [12-14,21,22,29-37,46-48,64-66,179,180].

In addition to between country variability, there is variability across regions within a country and even within the regions. Data from 2008 indicate that the prevalence of arthritis is 2.5% higher in ON than in AB and BC [10]. Self-reported physician-diagnosed prevalence of arthritis in the ON LHINs ranged from 10.9% (Central West) to 25.2% (South East); in the AB Health Regions ranged from 10.7% (Calgary) to 21.8% (Aspen); and in the BC Health Service Delivery Areas ranged from 10.7% (Richmond) to 22.1% (North Vancouver Island) [10]. Additional data is available for health regions within ON with prevalence of treated OA ranging from 7.5% (Waterloo Wellington LHIN) to 12.1% (Erie St. Clair LHIN). This would suggest that factors associated with having arthritis may vary throughout the province (e.g. age, female sex, body mass index). These data show that the prevalence of OA is about 3.0% higher in women.

OA is the most common type of arthritis with approximately 10.0% of Canadians having OA [57]. This rate was in the middle of the range of the prevalence reported for all countries (most ranged between approximately 4.0% and 12.0%) [32-37,44,46-48,51-55,59,61-67,70,71,74,77-79,121,179,180]. Similar to the overall Canadian prevalence, Kopec et al reported an overall prevalence of 10.8% in BC [55].

Inflammatory arthritis (e.g., RA, spondyloarthritis, etc.) and autoimmune diseases such as SLE and SSc have much lower prevalence, approximately 1.0% or less. The National Arthritis Data Workgroup [4], using the best available estimates applied to the corresponding 2005 US population from the Census Bureau, revealed the prevalence of RA was 0.6% in American adults age 18 years and older. Most peer-reviewed studies from other parts of the world also reported a prevalence of RA ranging between 0.5% to 1.0%. Spondyloarthritis, which includes AS and PsA, has reported prevalence of less than 1.0% [57]. AS in 3 to 4 times more frequent in males.

Autoimmune diseases (e.g., SLE and SSc) have reported prevalence between 0.02% and 0.05% using databases from physicians, hospitalizations and/or the regional arthritis center [57,126,127,131-135,137-146,150-152,156,157].

Approximately, 3.0% of Canadians have gout [57].

There are limitations in the above data. Existing data tend to rely on self-report of physician-diagnosed arthritis. Prevalence varies depending on the definition used to identify cases (e.g., population-based surveys, administrative codes, clinic samples); the definition used to diagnose cases (e.g., different criteria applied for inclusion of cases); differences in the sample demographics (e.g., general adult population, minimal age for inclusion, aboriginals, older adults only); and different years of data collection (e.g., point prevalence, period prevalence). These differences create a challenge when comparing the prevalence rates around the world for various arthritis conditions.

In summary, there is little population level prevalence data for arthritis in the peer-reviewed literature, with a notable paucity of Canadian data. However, overall the data support that approximately 1 in 6 people in the developed world have arthritis, of which OA is the most common form. Inflammatory arthritis, most commonly RA and spondyloarthritis affect approximately 1.0% each. There is general agreement that more women than men have arthritis and that the prevalence of arthritis increases with age.

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Appendix A: Search Strategies for Peer-Reviewed Literature – Key Words and Results

Search Strategy for MEDLINE

Executed on 17-Apr-2009

Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) 1950 to Present

#	Searches	Results
1	arthritis/ or arthritis, psoriatic/ or arthritis, rheumatoid/ or gout/ or osteoarthritis/ or spondylarthritis/	111145
2	arthr*.mp.	215546
3	osteoarthr*.mp.	41365
4	systemic lupus erythematosus.mp. or Lupus Erythematosus, Systemic/	42744
5	lupus.mp.	54017
6	Spondylarthropathies/ or Spondylitis, Ankylosing/ or spondyloarthropathies.mp. or Spondylitis/	12991
7	ankyl*.mp.	15670
8	spondy*.mp.	25061
9	reiter*.mp.	5017
10	scleroderma.mp. or Scleroderma, Systemic/	16932
11	sclerod*.mp.	17371
12	Rhumatic diseases/ or rheumatic disease*.mp.	20298
13	rheuma*.mp.	138046
14	gout*.mp.	10551
15	polyarthr*.mp.	8442
16	oligoarthr*.mp.	616
17	Sjogren's Syndrome/ or sjogren*.mp.	11041
18	sjoegren*.mp.	65
19	Still's Disease, Adult- Onset/ or still* disease*.mp.	1292
20	bechterew*.mp.	546
21	joint disease/ or joint disease*.mp.	22211

22	coxarth*.mp.	1388
23	spinal osteophytosis.mp. or Spinal Osteophytosis/	3144
24	spinal osteophyt*.mp.	3151
25	Arthritis, Gouty.mp. or Arthritis, Gouty/	590
26	osteoarthritis, hip/ or osteoarthritis, spine/ or osteoarthritis, knee.mp.	8004
27	musculoskeletal diseases/ or bone diseases/ or cartilage diseases/ or fasciitis/ or foot deformities/ or foot diseases/ or hand deformities/ or joint diseases/ or muscular diseases/ or musculoskeletal abnormalities/ or rheumatic diseases/ or tennis elbow/	83999
28	musculoskeletal disease*.mp.	5910
29	msk.mp.	232
30	musculoskeletal injur*.mp.	1044
31	musculoskeletal condition*.mp.	632
32	musculoskeletal disorder*.mp.	2442
33	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32	438777
34	prevalence.mp. or Prevalence/	293617
35	prevalen*.mp.	336332
36	35 or 34	336332
37	33 and 36	14488
38	limit 37 to (english language and yr="1980 -Current" and "all adult (19 plus years)" and	7940

Search Strategy for EMBASE

Executed on 04-Sep-2009

EMBASE 1980 to 2009 Week 35			
#	**Searches**	**Results**	**Search Type**
1	arthritis/	24819	Advanced
2	psoriatic arthritis/	4332	Advanced
3	rheumatoid arthritis/	60430	Advanced
4	gout/	5258	Advanced
5	osteoarthritis/	24548	Advanced
6	osteoarthr*.mp.	39736	Advanced
7	spondylarthritis/	222	Advanced
8	arthr*.mp.	209059	Advanced
9	systemic lupus erythematosus/	31143	Advanced
10	lupus.mp.	46870	Advanced
11	spondyloarthropathy/	2629	Advanced
12	ankylosing spondylitis/	7578	Advanced
13	spondylitis/	1854	Advanced
14	ankyl*.mp.	10650	Advanced
15	spondy*.mp.	22229	Advanced
16	reiter*.mp.	3748	Advanced
17	systemic sclerosis/	6555	Advanced
18	sclerod*.mp.	10134	Advanced
19	rheumatic disease/	10345	Advanced
20	rheuma*.mp.	105441	Advanced
21	gout*.mp.	6414	Advanced
22	polyarthr*.mp.	6406	Advanced
23	oligoarthr*.mp.	607	Advanced
24	Sjoegren syndrome/	8824	Advanced
25	sjogren*.mp.	7366	Advanced
26	sjoegren*.mp.	9078	Advanced
27	adult onset Still disease/	309	Advanced
28	still* disease*.mp.	1023	Advanced
29	bechterew*.mp.	275	Advanced
30	joint disease*.mp.	5023	Advanced
31	arthropathy/	7558	Advanced

32	coxarthr*.mp.	704	Advanced
33	spinal osteophyt*.mp.	19	Advanced
34	hip osteoarthritis/	3091	Advanced
35	spondylosis/	1331	Advanced
36	knee osteoarthritis/	7491	Advanced
37	musculoskeletal disease/	9211	Advanced
38	bone disease/	7669	Advanced
39	chondropathy/	1814	Advanced
40	fasciitis/	1160	Advanced
41	foot malformation/	2636	Advanced
42	foot disease/	2509	Advanced
43	hand malformation/	1627	Advanced
44	muscle disease/	5281	Advanced
45	musculoskeletal system malformation/	241	Advanced
46	tennis elbow/	998	Advanced
47	epicondylitis.mp.	1058	Advanced
48	(musculoskeletal adj6 disease*).mp.	10136	Advanced
49	MSK.mp.	208	Advanced
50	(musculoskeletal adj6 injur*).mp.	3943	Advanced
51	(musculoskeletal adj6 condition*).mp.	891	Advanced
52	(musculoskeletal adj6 disorder*).mp.	2997	Advanced
53	or/1-52	357002	Advanced
54	prevalence/	153940	Advanced
55	prevalen*.mp.	289428	Advanced
56	55 or 54	289428	Advanced
57	53 and 56	15698	Advanced
58	limit 57 to (human and (adult <18 to 64 years> or aged <65+ years>))	7877	Advanced
59	limit 58 to (english language and yr="1980 -Current")	7280	Advanced

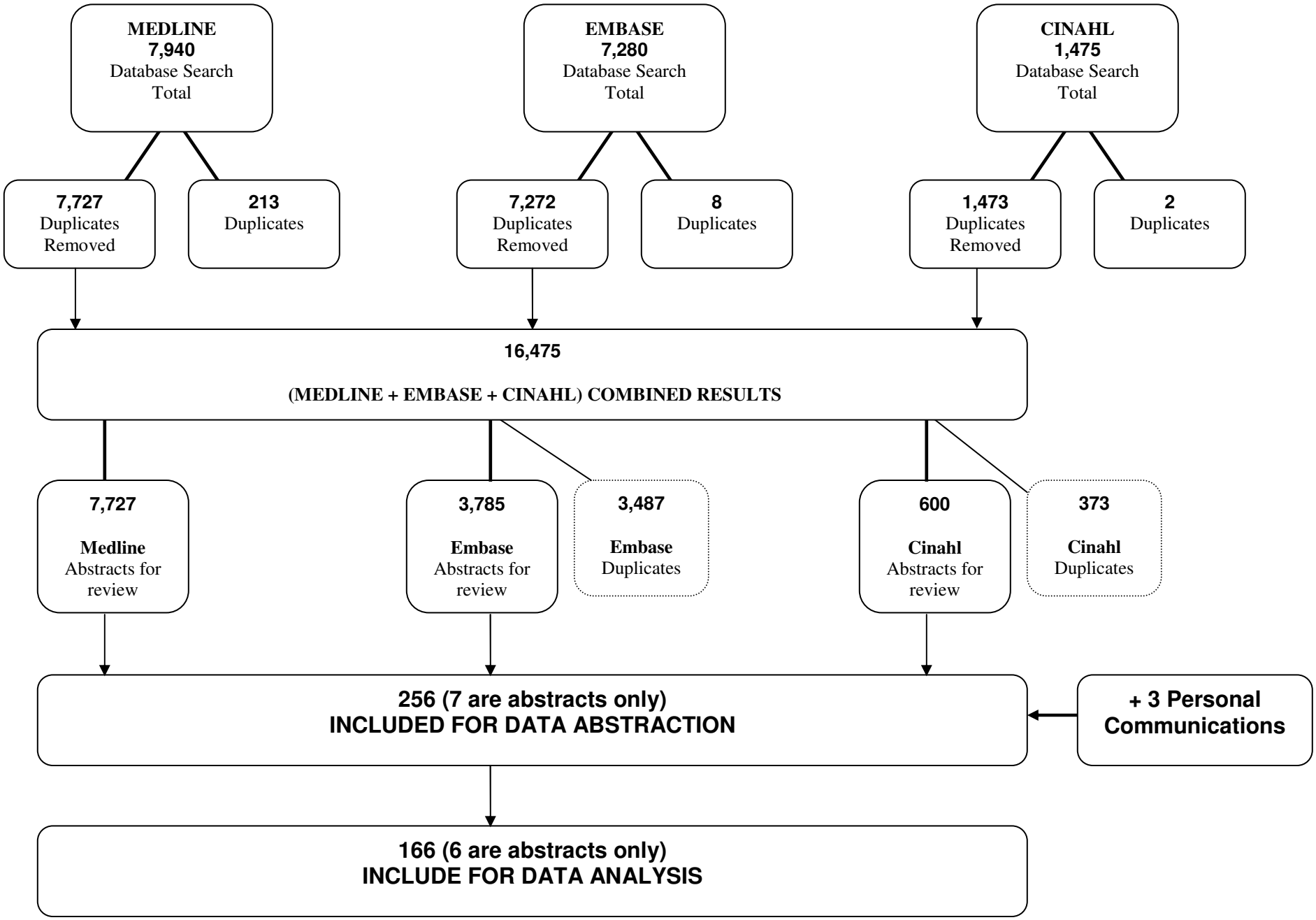
Search Strategy for CINAHL

Executed on 09-Sep-2009

#	Query	Limiters/Expanders	Results
S57	S54 and S55	Limiters - English Language; Age Groups: Adult, 19-44 years, Middle Age, 45-64 years, Aged, 65+ years, Aged, 80 and over, All Adult Search modes - Boolean/Phrase	1475
S56	S54 and S55	Search modes - Boolean/Phrase	2502
S55	S52 or S53	Search modes - Boolean/Phrase	45501
S54	S1 or S2 or S3 or S4 or S5 or S6 or S7 or S8 or S9 or S10 or S11 or S12 or S13 or S14 or S15 or S16 or S17 or S18 or S19 or S20 or S21 or S22 or S23 or S24 or S25 or S26 or S27 or S28 or S29 or S30 or S31 or S32 or S33 or S34 or S35 or S36 or S37 or S38 or S39 or S40 or S41 or S42 or S43 or S44 or S45 or S46 or S47 or S48 or S49 or S50 or S51	Search modes - Boolean/Phrase	49981
		Combined Results	
S53	TX prevalen*	Search modes - Boolean/Phrase	45501
S52	(MH "Prevalence")	Search modes - Boolean/Phrase	15971
		Prevalence Segment	
S51	TX musculoskeletal N6 disorder*	Search modes - Boolean/Phrase	1321
S50	TX musculoskeletal N6 condition*	Search modes - Boolean/Phrase	525
S49	TX musculoskeletal N6 injur*	Search modes - Boolean/Phrase	1092
S48	TX MSK	Search modes - Boolean/Phrase	49
S47	TX musculoskeletal N6 disease*	Search modes - Boolean/Phrase	3072
S46	TX epicondylitis	Search modes - Boolean/Phrase	314
S45	(MH "Tennis Elbow")	Search modes - Boolean/Phrase	482
S44	(MH "Musculoskeletal Abnormalities")	Search modes - Boolean/Phrase	301
S43	(MH "Muscular Diseases")	Search modes - Boolean/Phrase	832
S42	(MH "Hand Deformities")	Search modes - Boolean/Phrase	25
S41	(MH "Foot Diseases")	Search modes - Boolean/Phrase	876
S40	(MH "Foot Deformities")	Search modes - Boolean/Phrase	327
S39	(MH "Fasciitis")	Search modes - Boolean/Phrase	97
S38	(MH "Cartilage Diseases")	Search modes - Boolean/Phrase	195
S37	(MH "Bone Diseases")	Search modes - Boolean/Phrase	633
S36	(MH "Musculoskeletal Diseases")	Search modes - Boolean/Phrase	2224
		MSK Segment	
S35	(MH "Osteoarthritis, Knee")	Search modes - Boolean/Phrase	599
S34	(MH "Osteoarthritis, Hip")	Search modes - Boolean/Phrase	301
S33	TX spinal osteophyt*	Search modes - Boolean/Phrase	103
S32	(MH "Spinal Osteophytosis")	Search modes - Boolean/Phrase	103

S31	TX coxarthr*	Search modes - Boolean/Phrase	24
S30	TX joint disease*	Search modes - Boolean/Phrase	3008
S29	(MH "Joint Diseases")	Search modes - Boolean/Phrase	1100
S28	TX bechterew*	Search modes - Boolean/Phrase	2
S27	TX still* disease*	Search modes - Boolean/Phrase	63
S26	(MH "Still's Disease, Adult-Onset")	Search modes - Boolean/Phrase	39
S25	TX sjoegren*	Search modes - Boolean/Phrase	4
S24	TX sjogren*	Search modes - Boolean/Phrase	751
S23	(MH "Sjogren's Syndrome")	Search modes - Boolean/Phrase	503
S22	TX oligoarthr*	Search modes - Boolean/Phrase	47
S21	TX polyarthr*	Search modes - Boolean/Phrase	173
S20	TX gout*	Search modes - Boolean/Phrase	960
S19	TX rheuma*	Search modes - Boolean/Phrase	16192
S18	(MH "Rheumatic Diseases")	Search modes - Boolean/Phrase	864
S17	TX sclerod*	Search modes - Boolean/Phrase	991
S16	(MH "Scleroderma, Systemic")	Search modes - Boolean/Phrase	800
S15	TX reiter*	Search modes - Boolean/Phrase	629
S14	TX spondy*	Search modes - Boolean/Phrase	1794
S13	TX ankyl*	Search modes - Boolean/Phrase	1013
S12	(MH "Spondylitis, Ankylosing")	Search modes - Boolean/Phrase	640
S11	(MH "Spondylarthropathies")	Search modes - Boolean/Phrase	50
S10	TX lupus	Search modes - Boolean/Phrase	2752
S9	(MH "Lupus Erythematosus, Systemic")	Search modes - Boolean/Phrase	2056
S8	TX arthr*	Search modes - Boolean/Phrase	29800
S7	(MH "Spondylarthritis")	Search modes - Boolean/Phrase	70
S6	TX osteoarthr*	Search modes - Boolean/Phrase	7301
S5	(MH "Osteoarthritis")	Search modes - Boolean/Phrase	4974
S4	(MH "Gout")	Search modes - Boolean/Phrase	729
S3	(MH "Arthritis, Rheumatoid")	Search modes - Boolean/Phrase	5817
S2	(MH "Arthritis, Psoriatic")	Search modes - Boolean/Phrase	297
S1	(MH "Arthritis")	Search modes - Boolean/Phrase	3315
		Arthritis Segment	

Appendix B: Peer-Reviewed Literature Search Results – Final Numbers for Inclusion/Inclusion



Appendix C: Grey Literature Search Results of Population-Based Surveys

Figure 1C: Population-Based Surveys Accessed From Canadian and American Web Sites

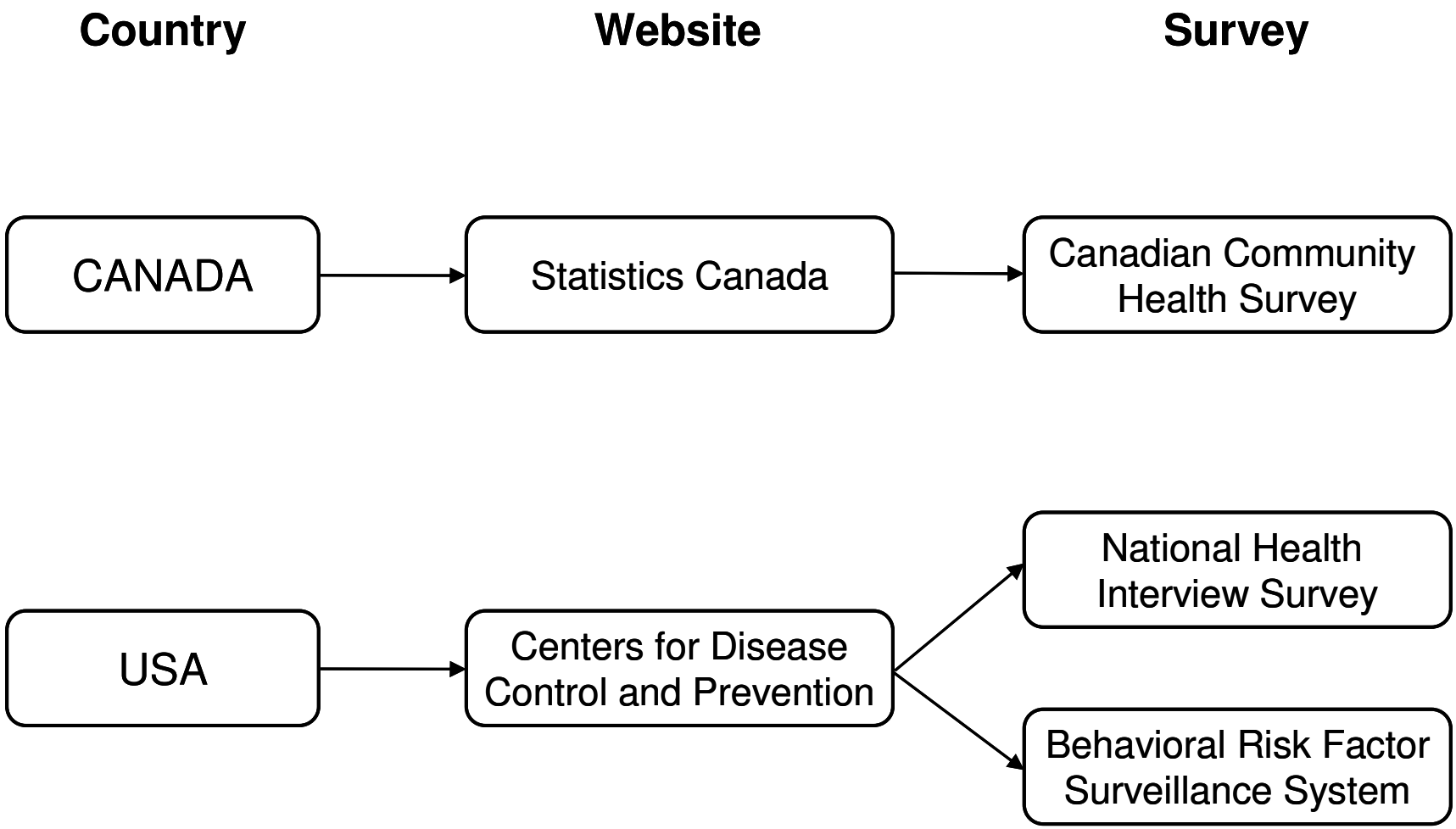
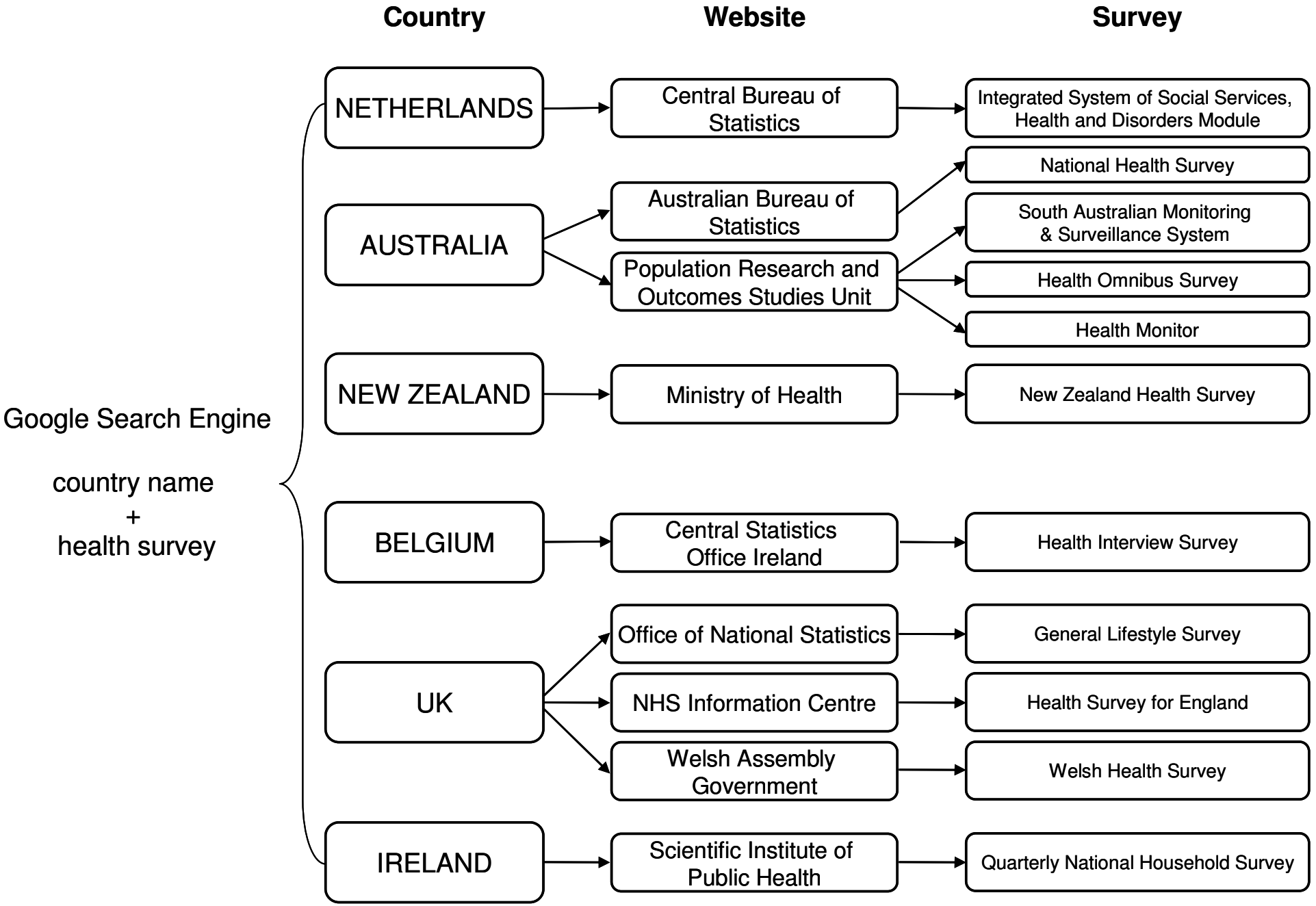


Figure 2C: Population-Based Surveys Accessed From International Web Sites



Appendix D: Peer-Reviewed Literature Data Abstraction Tables

Table 1D: Arthritis Prevalence [N=29*]

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
[8]	Canizares, Power, et al.	2008	Canada (all provinces and territories)	Population-based survey [Canadian Community Health Survey (CCHS)]	Stratified, random sampling (households)	M/F. 15 yrs and older.	N=130,880; n=127,513	CCHS cycle 1.1 (2000-2001)	Self-report of PHYS-dx	16.0%
[2]	Perruccio, Power, et al.	2006	Canada (10 provinces)	Population-based survey (NPHS & CCHS)	Stratified, random sampling (households)	M/F. 15 yrs and older.	**NPHS**: 1994-95 (N=16,989); 1996-97 (N=70,884); & 1998-99 (N=14,682) **CCHS:** 2000-01 (N=130,880) & 2002-03 (N=130,700)	1994-95, 1996-97 & 1998-99 (NPHS) 2001-01 & 2002-03 (CCHS)	Self-report of PHYS-dx	**NPHS:** 13.42% in 1994; 14.50% in 1996, 15.98% in 1998 **CCHS:** 16.00% in 2000; 17.63% in 2002
[6]	Perruccio & Badley	2004	Canada	Population-based survey (NPHS)	Stratified, random sampling (households)	M/F. 15 yrs and older.	1994-95 (N=16,989); 1996-97 (N=70,884); & 1998-99 (N=14,682)	1994-95, 1996-97, 1998-99	Self-report	94/95=13.4%; 96/97=14.5%; 98/99=16.0%
[177]	Wang, Elsbett-Koeppen, et al.	2000	Canada (10 provinces)	Population-based survey (NPHS)	Stratified, random sampling (households)	M/F. 20 yrs and older.	N=39,240	1994-95	Self-report of PHYS-dx	14.2%
[7]	Wang & Badley	2003	Canada (10 provinces; Yukon & North West Territories included in HALS)	Population-based [General Social Survey (GGS) & National Public Health Survey (NPHS)]	Stratified, random sampling (households)	M/F. 15 yrs and older.	**NPHS:** N= 43,979 (1994) & N= 163,391 (1996) **GSS:** (N=11,801)	1994 & 1996 NPHS 1991 GSS cycle 6.	Self-report	**NPHS** Total: 13% (1994) & 13.2% (1996); in **BC**: 12.6% (1994) & 13.0% (1996); in **AB**: 13.4% (1994) & 13.2% (1996); in **ON**: 14.3% (1994) & 14.1% (1996) **GSS** Total: 20.8%;

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
										in **BC**: 21.9%; in **AB**: 18.8%; in **ON**: 21.2%
[3]	Badley & Ansari	2010	Canada (10 provinces) & USA (50 States and District of Columbia)	Population-based survey [Joint Canada/US Survey of Health (JCUSH)]	Simultaneously carried out in both countries using a common methodology. One-time, random, computer-assisted telephone survey for one adult in each household.	M/F. 18 yrs and older. Having been told by a doctor or health professional as having AR not including fibromyalgia (FM).	n=3,505 (representative of 24 million Canadian adults) n=5,183 (representative of 206 million American adults)	Nov 2002 – Mar 2003	Self-report of health professional diagnosis	16.9% CAD 18.7% USA
[15]	Centers for Disease Control & Prevention	2006	USA	Population-based survey (NHIS)	Multistage area probability sampling (households) and noninstitutional group quarters (e.g., college dormitories)	M/F. 18 yrs and older. US civilian.	2003 (N=30,852); 2004 (N=31,326); 2005 (N=31,428)	2003-2005	Self-report of PHYS-dx (AR includes AR, RA, gout, SLE, or FM)	21.6%
[16]	Hootman & Helmick	2006	USA	Population-based survey (NHIS)	Multistage area probability sampling (households) and noninstitutional group quarters (e.g., college dormitories)	M/F. 18 yrs and older. US civilian.	N=36,000	2003 (used to project data for 2005-2030)	Self-report of PHYS-dx (AR includes AR, RA, gout, SLE, or FM)	21.6%
[17]	Centers for Disease Control & Prevention	2005	USA	Population-based survey (NHIS)	Multistage area probability sampling (households) and noninstitutional group quarters (e.g., college dormitories)	M/F. 18 yrs and older. US civilian.	N=31,044	2002	Self-report of PHYS-dx (AR includes AR, RA, gout, SLE, or FM)	20.8% Additional 11.3% had possible AR
[19]	Collins	1997	USA	Population-based survey (NHIS)	Multistage area probability sampling (households) and noninstitutional group quarters (e.g., college dormitories)	M/F. 18 yrs and older. US civilian.	N = 368,075	1990, 1991, 1992	Self-report of PHYS-dx (AR includes AR, RA, gout, SLE, or FM) **Chronic conditions – AR**	122.8/1,000 (1979-80); 130.9/1,000 (1983-85); 130.9/1,000 (1986-88); 135.6/1,000 (1990-92)

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
[18]	Center for Disease Control & Prevention	1996	USA	Population-based survey (NHIS)	Multistage area probability sampling (households) and noninstitutional group quarters (e.g., college dormitories)	M/F. 18 yrs and older. US civilian.	N=59,289; n=41,919	1989-1991	Self-report (AR includes AR, RA, gout, SLE, or FM)	21.0%
[181]	Center for Disease Control & Prevention	Un-known	USA	Population-based survey (NHIS)	Multistage area probability sampling (households) and noninstitutional group quarters (e.g., college dormitories). Based on 1/6th of sample of women.	Females only. 15 yrs and older. US civilian.	N=145,832; n=24,201	1989-1991	Self-report (AR includes AR, RA, gout, SLE, or FM)	22.7% (females only)
[20]	Center for Disease Control & Prevention	1994	USA	Population-based survey (NHIS)	Multistage area probability sampling (households) and noninstitutional group quarters (e.g., college dormitories)	M/F. 18yrs and older. US civilian.	n=59,289	1989-1991	Self-report (AR includes AR, RA, gout, SLE, or FM)	15.0% Florida=19.1% (highest) and Alaska=10.0% (lowest)
[23]	Centers for Disease Control & Prevention	2006	USA (50 states, District of Columbia (DC), and 3 territories - Puerto Rico, Guam, and US Virgin Islands)	Population-based survey [Behavioural Risk Factor Surveillance System (BRFSS)]	Disproportionate stratified sample design was used (households). Simple random sampling in DC, Puerto Rico and US Virgin Islands.	M/F. 18 yrs or older with active telephone number.	Unknown	2003	Self-report of PHYS-dx (AR includes AR, RA, gout, SLE, or FM)	State median (50 States and DC)=27.0% States 17.9% (Hawaii) to 37.2% (West Virginia) Territories 16.4% (Guam) to 24.4% (Puerto Rico)
[178]	Centers for Disease Control & Prevention	2002	USA (All 50 States, DC & Puerto Rico)	Population-based survey (BRFSS)	Disproportionate stratified sample design was used (households). Simple random sampling in DC, Puerto Rico and US Virgin Islands.	M/F. 18 yrs or older with active telephone number.	N=69,934	2001	Self-report of PHYS-dx (AR includes AR, RA, gout, SLE, or FM)	10.6% (AR only) & 12.4% (AR and CJS) Estimated rate (AR and/or CJS): 33.0% with state

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
										median at 33.1%, West Virginia at 42.6% (highest) and Hawaii at 17.8% (lowest)
[24]	Mehrotra, Thomas, et al.	2003	USA (Wisconsin)	Population-based survey (BRFSS)	Disproportionate stratified sample design was used (households). Simple random sampling in DC, Puerto Rico and US Virgin Islands.	M/F. 18 yrs or older with active telephone number.	N=2,721	2000	Self-report of PHYS-dx (AR includes AR, RA, gout, SLE, or FM)	24.6% (AR only) 33.4% (AR and/or CJS)
[182]	Mili, Helmick, et al.	2002	USA (States: AL, AZ, GA, HI, KS, LA, MS,MO, MT, NE, NJ, OH, OK, RI, WV & Territory: PR)**	Population-based survey (BRFSS)	Disproportionate stratified sample design was used (households). Simple random sampling in DC, Puerto Rico and US Virgin Islands.	M/F. 18 yrs or older with active telephone number.	N=54,169	1996-1999	Self-report of PHYS-dx (AR includes AR, RA, gout, SLE, or FM)	30% (AR and/or CJS) with weighted state-specific rates ranging from 18.8% to 36.4%
[25]	Vradenburg, Simoes, et al.	2002	USA (Missouri)	Population-based survey (Missouri-BRFSS)	Disproportionate stratified sample design was used (households). Simple random sampling in DC, Puerto Rico and US Virgin Islands.	M/F. 18 yrs and older.	n=1,550 (620 males & 930 females)	1996	Self-report of PHYS-dx (AR includes AR, RA, gout, SLE, or FM)	26.3% (AR only) 36.4% (AR and/or CJS)
[26]	Center for Disease Control & Prevention	1994	USA [Arizona (AZ), Missouri (MO), Ohio (OH)]	Population-based survey (BRFSS)	Disproportionate stratified sample design was used (households). Simple random sampling in DC, Puerto Rico and US Virgin Islands.	M/F. 18 yrs or older with active telephone number.	n=4,688 (AZ=1,847, MO=1,509 & OH=1,332)	1991-1992	Self-report (AR includes AR, RA, gout, SLE, or FM)	20.5% in AZ; 23.7% in MO; & 24.5% in OH

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
27	Ferucci, Schumacher, et al.	2008	USA (Alaska (AL) and south western US)	Population-based, longitudinal study [Education and Research Towards Health (EARTH) Study]	Residents in AL from 26 communities in 3 distinct regions and residents in the south western US on the Navajo Nation	M/F. 18 yrs and older. Residents of the community who are American Indian or Alaska Native, eligible for Indian Health Services healthcare.	N=10,371; n= 9,968	2004-2007	Self-report of PHYS-dx	22.2% in the Alaska Native cohort 12.7% in the Southwest American Indian cohort
28	al Snih, Markides, et al.	2000	USA (AZ, CA, CO, NM, TX)	Population-based, longitudinal study [Epidemiological Studies of the Elderly (EPESE)].	Area probability sampling (selection of counties, census tracts, households)	M/F. Mexican Americans, aged 65 yrs and older.	N=3,050 (when weighted just under 500,000)	1993-1994	Self-report of PHYS-dx (AR includes AR or rheumatism)	40.8%
183	Elliott, Johnson, et al. **(Abstract Only)**	2000	USA (Wisconsin)	Observational study (face-to-face interview, focus groups, and medical chart review)	Random selection of chippewa Indian people on tribal lands in Wisconsin	M/F. Chippewa Indians living on tribal lands.	n=82	1973-1975	Self-report (PHYS report or description of symptoms confirmed by a RT)	56%
4	Helmick, Felson, et al. for the **National Arthritis Data Workgroup** PART I	2008	USA	Review of population-based surveys e.g., National Health and Nutrition Examination Survey (NHANES); National Health Interview Survey (NHIS)	Published analyses from available national surveys: NHIS (approx 106,000 adults in 43,000 household) NHANES (approx 5,000 adults yearly) are probability samples of the US civilian, noninstitu-tionalized pop Published studies of smaller, defined populations were also examined for best available prevalence estimates for specific rheumatic conditions	M/F. All ages.	Review of published studies and data based on national population samples when available	For overall AR, the 2003-2005 NHIS For other specific conditions, best available prevalence estimates were applied to the corresponding 2005 US population estimates from the Census Bureau, to estimate the number affected	**Self-report doctor diagnosed AR, RA, gout, lupus, or fibromyalgia:** 21.6% or 46.4 million adults 18 yrs+ (using the 2003-2005 NHIS) **RA:** 0.6% or 1.3 million adults 18 yrs + (using the 1995 Rochester, Minnesota age/sex-specific estimates & corresponding 2005 pop estimates) **SpA:** Approx between 0.6 and 2.4 million adults (using range of 346 to 1,310 per 100,000 adults 25 yrs + & 2005 pop estimates) **SLE:** 161,000 to 322,000 adults 15-64 yrs (using San Francisco sex/race prevalence & 2005 pop estimates) **SSc:** Approx 49,000 adults 18 yrs+ (using southeast Michigan sex/ race prevalence & 2005 pop estimates) **Primary SS:** Approx 0.4 to 3.1 million adults (using Olmsted County estimates & 2005 pop estimates)

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
[5]	Lawrence, Felson et al. for the **National Arthritis Data Workgroup** PART II	2008	USA	Review of population-based surveys e.g., National Health and Nutrition Examination Survey (NHANES); National Health Interview Survey (NHIS)	Published analyses from available national surveys: NHIS (approx 106,000 adults in 43,000 household) NHANES (approx 5,000 adults yearly) are probability samples of the US civilian, noninstitu-tionalized pop Published studies of smaller, defined populations for best available prevalence estimates for specific rheumatic conditions	M/F. All ages.	Review of published studies and data based on national population samples when available	For overall AR, the 2003-2005 NHIS For other specific conditions, best available prevalence estimates were applied to the corresponding 2005 US population estimates from the Census Bureau, to estimate the number affected	**Symptomatic knee OA:** 9.3 million & **Symptomatic hand OA:** 13.1 million adults 26 yrs+, (using Framingham data on age/sex prevalence & 2005 pop estimates) **Clinical OA of some joint:** 26.9 million adults 25 yrs+ (using NHANES I estimate for those ages 65-74 applied to the 2005 census pop estimates for ages 75 yrs +)	
[184]	Martin, Haren, et al.	2008	Australia (north west region of Adelaide)	Population-based survey [The Florey Adelaide Male Ageing Study (FAMAS)]	Random selection from households	Males only. 35-80 yrs old	N=1,195	2002-2003; 2004-2005	Self-report **Chronic Conditions - OA, RA**	Males only: **OA:** 9.7% **RA:** 5%
[43]	Busija, Hollings-worth, et al.	2007	Australia (Victoria - Melbourne)	Population-based survey [The Victorian Population Health Survey]	Random selection of households (5 rural and 4 metropolitan Department of Human Resources regions covering Victoria)	M/F. 18 yrs and older. Living in households with landline telephone connection in Melbourne, Victoria, AUS (4.61 million).	N=7,500	Aug to Nov 2000	Self-report of PHYS-dx	23% 26.2% (rural areas) & 21.9% (urban areas)
[45]	Knox, Harrison, et al.	2008	Australia	Population-based, cross-sectional study of general practice	A two-stage cluster sample. Patients attending a sub sample of general practice clinics in the Bettering the Evaluation and Care of Health (BEACH)	M/F. All ages. Any of the disease conditions determined by the Australian Government as National Health Priority Areas (AR was included).	n= 9,156	2005	PHYS-dx **Chronic conditions - AR**	AR: 22.8%; OA: 20.0%; & RA: 1.0%

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
					program.	GP's who provided no information on their 30 patients were excluded.				
[44]	Hill, Parsons, et al.	1999	Australia	Population-based survey (South Australian (SA) Health Omnibus Study)	Multistage, clustered area sample of 4,200 households in SA. 75% from metropolitan Adelaide area and remainder from country centers with a population of 1,000 or more.	M/F. 15yrs and older. South Australians 15 yrs and older residing in the community. Excludes those in hotels, motels, hospitals, nursing homes, and other institutions.	n=3,001	1995 March	Self-report of PHYS-dx	22.2% (all AR) 8.6% had OA; 4.0% had RA; & 9.6% had other or unspecified AR
[49]	Al Snih, Ray, et al.	2006	South America: Argentina (Buenos Aires), Brazil (Sao Paulo), Chile (Santiago), Uruguay (Montevideo); Mexico (Mexico City); and Caribbean Islands: Barbados (Bridgeton), Cuba (Havana) - **SABE** USA (Texas, New Mexico, Colorado, Arizona and California) - **H-EPESE**	Population-based, cross-sectional survey [Health, Well-Being and Aging in Latin America and the Caribbean Study (SABE)]; Population-based, longitudinal study [Hispanic Established Population for the Epidemiological Study of the Elderly (H-EPESE)]	**SABE Study:** Multistage stratified, cluster samples. 10,970 household interviews were conducted. **H-EPESE Study**: Area probability sampling procedures (country, census tracts and households). 3,056 respondents and proxy.	**SABE:** M/F. 60 yrs and older and their surviving spouses, living in large cities in Latin America. **H-EPESE:** M/F. Mexican Americans. 65 yrs and older residing in southwest regions of the USA (Spanish & English).	**SABE** N=938 (BA); N=1,234 (SP); N=1,136 (SAN); N=1,242 (MON); N=1,256 (BT); N=1,657 (HAV); & N=774 (MC) **H-EPESE** N=2,675	1999-2000 (SABE) 1993-1994 (H-EPESE)	Self-report of PHYS-dx (AR includes AR or rheumatism)	23.8% in MC to 56.0% in HAV

** One is an abstract*

*** AL (Alabama), AZ (Arizona), GA (Georgia), HI (Hawaii), KS (Kansas), LA (Louisiana), MS (Mississippi), MO (Missouri), MT (Montana), NE (Nebraska), NJ (New Jersey), OH (Ohio), OK (Oklahoma),RI (Rhode Island), WV (West Virginia), PR (Puerto Rico)*

Table 2D: Rheumatic Disease Prevalence [N=19*]

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
[56]	Oen, Postl, et al.	1986	Canada (NWT)	Clinical (Interview and clinic exam)	Inuits from the Keewatin District. Review of medical records & computerized data from the Manitoba Health Services Commission for out-of-province patients.	M/F. 15 yrs and older. Patients of Inuit ancestry with no known racial mixture. Patients with dx of specific rheumatic or CTD, unclassified AR, or a complaint of LBP. Cases of septic arthritis and acute rheumatic fever were excluded.	n=101	1972 - 1982	PHYS-dx	**Point prevalence – RA:** 647/100,000; **OA:** 1,470/10,000; **definite AS:** 194/100,000; **seronegative SpA:** 840/100,000 **Period prevalence – RA:** 636/100,000; **OA:** 1,460/10,000; **definite AS:** 194/100,000; **seronegative SpA:** 842/100,000
[130]	Boyer	1991	USA	Admin Data (Patient Care Information System)	Three different Indian groups living in villages - the Tlingit, Haida and Tsimshian	M/F. 18 yrs and older for RA. 20 yrs and older for SpA.	n=179	1983	PHYS-dx (RA according to 1958 ARA criteria; SLE according to 1982 ARA criteria; SpA according to the working def'n)	**SLE:** 91.7/100,000; **SpA:** 1.1%
[63]	Steven	1992	United Kingdom (Scotland)	Clinical (Record review by GP (HARPS))	Patients from urban and rural practices on the east and west coasts of the Highland region	M/F	n=2,770	1986 - 1987	PHYS-dx	**Symptomatic OA:** 65/1,000; **RA:** 5.5/1,000 (6.9/1,000 for those aged 15 yrs+); **Gout:** 3.4/1,000; **Seronegative arthritides** (including AS, PsA, Reiter's disease): 2.1/1,000; **CTD:** 0.45/1,000.
[89]	Sullivan, Barber, et al.	1990	United Kingdom (Scotland)	Clinical (Record review)	4 general practices with age-sex registers	M/F. Record at practice.	N=8,735 (Records searched)	Unknown	PHYS-dx	**RA:** 0.56%; **localized OA:** 2.36%; **generalized OA:** 2.23%; **Gout:** 0.26%

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
[185]	Schneider, Schmitt, et al.	2006	Germany (113 cities)	Population-based, cross-sectional survey (First National Health Survey of the Federal Republic of Germany)	Representative sample of the pop of the Federal Republic of Germany. Medical interviews and exams were carried out by 130 sites in 113 cities.	M/F. 18-79 yrs. Residing in the Federal Republic of Germany. Excluded incomplete datasets. Excluded degenerative joint disease (OA), dorsopathy, and pararheumatic conditions (OP).	N=7,124; n=6,461	Oct 1997 - Mar 1999	Self-report of PHYS-dx	Inflammatory AR (RA and AS): 3.4%
[73]	Larsson, Jonsson, et al.	1995	Sweden	Population-based (qu're)	Residents of Sweden. In 1986, Sweden had 3.285 million inhabitants aged 45+ yrs. In 2000, there were 3.694 million aged 45+ yrs.	M/F. 45 yrs and older. People with back problems, as well as accidents, provided that the latter had not given rise to long-lasting joint complaints were excluded.	N=5,259; n=4,870	1986 (Data from 1986 used to make projections for 2000)	Self-report	**Definitive destructive RA:** 0.65% of the total population for all ages (2000) **Degenerative joint disease:** 14% **Inflammatory joint disease:** 2.4%
[74]	Jacobsson, Lindgarde, et al.	1989	Sweden (Malmo - largest city in southern Sweden)	Cross-sectional survey (clinical sample)	Samples selected from population records, who took part in a previous survey carried out at the Section of Preventive Medicine at Malmo General Hospital	M/F. From the 1984 health survey group, who were 50 to 70 yrs of age. All living in the study area.	n=900	1985	RT-dx	**OA:** 5.8%; **RA:** 0.7%
[50]	Andrianakos, Trontzas, et al.	2003	Greece	Population-based, cross-sectional survey	Adult inhabitants in urban, suburban and rural areas located in northern, central and southern mainland Greece. Systematic sampling was used for every second or third household selected from a randomly chosen start point.	M/F. 19 yrs and older and residing in the study area.	N=14,233; n=8,740	1996 - 1999	Self-Report and RT-dx (ACR criteria for symptomatic OA, preliminary classification for systemic sclerosis, ESSG preliminary classification criteria for SpA and K-L criteria for spinal OA)	27.4% There was no significant difference among the urban, suburban, and rural populations
[121]	Minaur, Sawyers, et al.	2004	Australia (Yarrabah)	Population-based (COPCORD Core Questionnaire and	Residing in Yarrabah region. Approx 2.1% are Indigenous	M/F. 18 yrs and older or 15 to 17 yrs with parental	N=1,046; n=847	2002	Self-Report and PHYS-dx	**OA:** 5.5%; **Gout:** 3.8%;

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
				medical exam)	Australians and 81% of them are Aboriginal (AB) only. The remainder are Torres Strait Islanders (TSI) or both AB and TSI.	approval.				**PsA:** 0.5%; **Soft-tissue rheumatism:** 7.4%
[51]	Dai, Han, et al.	2003	China (Shanghai)	Observational, population-based (Interview and clinical exam)	All adults residing in Shanghai. 4 communities were selected randomly from 13 communities within Shanghai, in the Wujiaochang area of the Yangpu district.	M/F. 15 yrs and older. Residing in the selected communities chosen as the target population. Pain from a traumatic event was excluded.	N=7,603; n=6,584	1997 - 1998	Self-report of PHYS-dx (1987 ARA criteria for RA & 1982 ARA criteria for SLE; preliminary ARA criteria for primary gout (1977); 1984 New York criteria for AS)	**Rheumatic symptoms at any site:** 21.2%; **RA:** 0.47%; **AS:** 0.12%; **gout:** 0.33%; **symptomatic knee OA:** 4.1%; Only 2 cases of **SLE** found
[148]	Wigley, Zhang, et al.	1994	China	Observational, population-based (Interview and clinical exam)	Adults from Beijing (north) and Shantou (south) areas. Selected from village registers.	M/F. 20 yrs and older.	n=4,192 (Beijing, north) n=5,057 (Shantou, south)	Unknown	PHYS-dx (ARA criteria)	**RA:** (0.34% in the north and 0.32% in the south); **definite AS:** (0.26% in the north and 0.26% in the south); **SLE:** (0.01% in the north and 0.02% in the south)
[77]	Minh Hoa, Darmawan, et al.	2003	Vietnam (Hanoi)	Observational, population-based (Interview and clinical exam)	Trung Liet Commune is an urban area of Vietnam's capital city of Hanoi. The total population of Trung Liet main and side streets were surveyed. There were 2,308 households.	M/F. 16 yrs and older residing in the urban area of Trung Liet Commune.	N=2,930; n=2,119	2000	Self-report and RT-dx (based on the ACR criteria for RA, gout and OA/1987 revised ARA criteria)	**OA:** 4.1%; **RA:** 0.28%; **gout:** 0.14%; **Soft-tissue rheumatism:** (3.4%); **SpA:** 0.28%; **CTD:** (0.09%)
[78]	Chaiamnuay, Darmawan, et al.	1998	Thailand (Promanee subdistrict of Khao Changoke Community, Nakornayok Province)	Observational, population-based (Interview and clinical exam)	Randomly selected from villages 2, 11, and 12 of the Promanee subdistrict (total pop was 3,495)	M/F. 15 yrs and older.	n=2,455	Unknown	RT-dx (ACR criteria)	**OA:** 11.3%; **RA:** 0.12%; **gout:** 0.16%; **SpA:** 0.12%; **mixed CTD:** 0.04%; **unclassified CTD:** 0.04%

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
[52]	Mahajan, Jasrotia, et al.	2003	India (Jammu)	Observational, population-based (Interview and clinical exam)	Random selection of households within certain rural and urban localities of Jammu. Residents of Jammu drawn from different socio-professional groups.	M/F. 15 yrs and older. Soft-tissue rheumatism included shoulder pain/tennis elbow/de Quervain's tenosynovitis/carpal tunnel syndrome/ fibromyalgia/ trochantric/anserine and calcaneal bursitis/neck pain/upper back pain.	n=1,014	Unknown	PHYS-dx (OA and RA using ACR criteria; gout using working definition; SLE with RA like joint involvement; SpA by ESSG criteria)	**Rheumatic diseases:** 241.6/1,000; **Knee OA**: 42.4/1,000; Very low prevalence of RA and gout. No cases of SLE or SpA detected. Point prevalence of rheumatic diseases: 250.5/1,000 (rural) & 231.4/1,000 (urban)
[53]	Haq, Darmawan, et al.	2005	Bangladesh (Bhargaon, Dhaka and Mohammad pur)	Observational, population-based (Interview and clinical exam)	Adults residing in a rural community (RC), an urban slum – the poor (UrS), and an urban affluent part – middle class (UA). To serve as controls, 100 randomly selected rural and 136 urban negative respondents were examined.	M/F. 15 yrs or older and residing in any of the three districts.	N=2,601 (rural); N=1,307 (urban slum); N=1,252 (urban affluent)	2001	Self-report. Dx confirmed by RT (internationally accepted criteria e.g., ACR where available e.g., RA, gout, AS, etc. For conditions which no internationally accepted criteria exists, the guidelines in the appendix of the COPCORD Examination Sheet were adopted).	Overall rate of definite rheumatic diseases was 24.0% **Rheumatic diseases:** 24.8% (RC), 22.6% (UrS), & 25.2% (UA) **OA of knee:** 7.5% (RC), 9.2% (UrS), & 10.6% (UA) **RA:** 0.7% (RC), 0.4% (UrS), & 0.2% (UA) **Soft-tissue rheumatism:** 2.7% (RC), 2.5% (UrS), & 3.3% (UA) **Other inflammatory diseases:** 0.1% (RC), 0.1% (UrS), & 0.2% (UA)

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
79	Senna, De Barros, et al.	2004	Brazil (Minhas Gerais – Montes Claros)	Observational, population-based (Interview and clinical exam)	Adults residing in urban and sub-normal urban sectors. Every other house was selected until 30 houses on the particular street were approached or until the end of the street.	M/F. 16 yrs or older, who had resided at the address for at least 6 months.	N=3,168; n=3,038	Unknown	Self-report and RT-dx	**OA:** 4.14%; **RA:** 0.46%; & **SLE:** 0.098%
186	Singwe-Ngandeu, Meli, et al. **(Abstract Only)**	2007	Africa (Cameroon)	Clinical Sample	Rheumatology clinic at the Yaounde General Hospital, Cameroon	M/F. Patients referred to the outpatient department of the Internal Medicine service of the hospital over a 12-month period.	n=12,494	Unknown	PHYS-dx	**Rheumatic conditions:** 9.4%; **OA of the limbs:** 20.5%; **Chronic inflammatory and CTD:** 8.2%; **Other rheumatic conditions:** 4.1%
80	Cardiel & Rojas-Serrano	2002	Mexico (San Pedro Martir – Mexico City)	Observational, population-based (Interview and clinical exam)	A suburban community located in the south west region of Mexico City. Stratified, balanced and random sample of subjects.	M/F. 18 yrs and older.	N=2,500	Unknown	Self-report and PHYS-dx (based on the ACR criteria when possible)	**OA:** 2.3%; **RA:** 0.3%; **Gout:** 0.3%; & **LBP:** 6.3%
54	Farooqi & Gibson	1998	Pakistan	Observational, population-based (Interview and clinical exam)	Cluster sampling used to carry out house-to-house surveys. Three localities were selected as being representative of the social spectrum of northern Pakistan: Sagri for rural area; Mohallah Hukum Dad (in Rawalpindi) for inner-city poor area (urban) and a sector of Islamabad for affluent citizens (urban affluent).	M/F. 15 yrs and older. Adult Punjabis.	N=2,090; n=1997 (rural=683, urban=683, urban affluent=608)	Unknown	Self-report (joint radiology and relevant blood tests)	**Overall:** 148/1,000; **Knee OA:** 37/1,000; **RA:** 5.5/1,000; **SLE:** 0.5/1,000; **Gout:** 1.4/1,000; **SpA:** 1.0/1,000; **Soft-tissue rheumatism**: 19/1,000

** One is an abstract*

Table 3D: Osteoarthritis Prevalence [N=14]

Ref #	Author	Year	Disease	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop and sample)	Year of Data Collection	Method of dx	Crude Prevalence
[55]	Kopec, Rahman, et al.	2007	OA and allied disorders (ICD-9 code 175)	Canada (BC)	Admin data (Medical Services Plan - MSP)	BC pop 4,020,000. All patient visits to HCPs and hospital admissions covered by the MSP.	M/F. All ages. OA dx as either the first visit to a HCP or the first hospital separation with ICD-9 code 175. A visit was defined as any service covered by the MSP and excludes diagnostic procedures and certain other procedures, dialysis/transfusion, anaesthesia, obstetrics or therapeutic radiation.	N=433,439	1991-92 through 2000-01	PHYS-dx	10.8% (in 2001)
[59]	Dillon, Hirsch, et al.	2007	OA (hand)	USA	Population-based survey [National Health and Nutrition Examination Survey (NHANES-III)]	A multistage design based on probability, cluster, and stratified sampling. Oversampled adults 60yrs and over, blacks and Mexican Americans to improve subgroup estimates.	M/F. 60 yrs or older.	N=4,006; n=2,498	1988 - 1994 (phase II of NHANES III)	Self-reported. Dx confirmed by physician (ACR criteria).	**Symptomatic hand OA:** 8.0% (ACR criteria) **Asymptomatic hand OA:** 37.3% (physical exam)
[60]	Jordan, Helmick, et al.	2007	OA (knee)	USA (North Carolina - Johnston County)	Prospective cohort, population-based (Johnston County Osteoarthritis Project). Two interviews (pre and post clinic exam)	A probability-based sample representative of the civilian, noninstitutionalized, African American (over-sampled) or Caucasian population (under sampled Caucasian women 65+ yrs). 6 townships were selected from the 17 townships in Johnston County.	M/F. 45 yrs and older. Residents of one of the 6 townships of Banner, Beulah, Boon Hill, Clayton, Selma, and Smithfield for at least one year.	N=81,000; n=3,018	May 1991-Dec 1997	Self-report. Confirmed by radiographs.	Symptomatic OA: 16.4%

Ref #	Author	Year	Disease	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop and sample)	Year of Data Collection	Method of dx	Crude Prevalence
[61]	Felson, Naimark, et al.	1987	OA (knee)	USA	Cohort, population-based	The Framingham Heart Study cohort. Medical history, physical exam, and radiograph on knees.	M/F. 63-94 yrs. Community dwelling/living independently.	n=1,805	1983 -1985	Self-report. Confirmed by radiographs (Kellgren & Lawrence)	Symptomatic OA: 9.5%
[62]	Bedson, Jordan, et al.	2005	OA (knee)	United Kingdom (North Staffordshire)	Admin data (general practice computer records)	Case-control study in a single general practice belonging to the North Staffordshire GP Research Network. The practice is situated in an urban area with a pop of 13,731 cared for by 6 GPs. One control was identified per case by stratified random selection.	M/F. 45 yrs and older at time of consultation. For controls - all patients registered with the practice who had the same DOB and the same gender as the case and who had not been recorded as having KOA during the same 2 yrs period as the cases.	N=6,102; n=161 with AR identified n=146 cases & controls reviewed	Jan 01, 1998 to Jan 31, 2000	PHYS-dx (Dx criteria unknown)	Of 146 reviewed: 49% cases and 15% controls had knee OA (pre-1998) <u>Current</u> dx of knee OA: 1.1% Dx of knee OA <u>at some point</u> during registry with practice: 5.5% In a practice of 10,000, with similar age/gender distribution, dx of knee OA in the general pop 45 yrs and older: 2.4% (current) and 12.5% (at some point).
[68]	Schellevis, Van Der Velden, et al.	1992	OA (hip and/or knee)	Netherlands	Clinical sample (Record review by GP)	7 general practices (15 GPs)	M/F. Enrolled in one of 7 general practices.	N=23,534; n=21,349 (<65 yrs) & 2,185 (65 yrs and older)	Start Jan 1988	PHYS-dx	Hip/knee OA: 1.7% (<65 yrs) & 29.3% (65 yrs and older)
[69]	Mannoni, Briganti, et al.	2003	OA (hip, knee, hand)	Italy (Dicomano)	Cross-sectional, population-based (ICARe Dicomano project)	All community dwelling older adults recorded in the registry office of Dicomano, a small rural town near Florence, Italy	M/F. 65 yrs and older. Residing in the city of Dicomano.	N=864; n=697	Unknown	Self-report. Dx confirmed by a geriatrician trained by an RT (ACR criteria).	**Hand OA:** 14.9%; **Symptomatic knee OA:** 29.8%; **Symptomatic hip OA:** 7.7%

Ref #	Author	Year	Disease	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop and sample)	Year of Data Collection	Method of dx	Crude Prevalence
[70]	Grotle, Hagen, et al.	2008	OA (knee, hand)	Norway (Ullensaker municipality, 40 km northeast of Oslo)	Cross-sectional, population-based survey (postal qu're)	Sample from people previously enrolled in a cross-sectional survey from 1991-1994. Small rural pop of 23,500 inhabitants.	M/F. Born in 1918-20, 1928-30, 1938-40, 1948-50,1958-60, 1968-70, 1978-80. The oldest people born 1918-20 were excluded due to low number and responses (n=59).	N=6,108; n=3,266 (1,480 males and 1,786 females)	2004	Self-reported of PHYS-dx and/or X-ray	**OA in knee, hip and/or hand:** 12.8%. **Hip OA:** 5.5%, **Knee OA:** 7.1%, **Hand OA:** 4.3%.
[71]	Ingvars-son, Hagglund, et al.	1999	OA (hip)	Iceland	Clinical sample (data from hospital records and radiographs)	Clinical information was sought in hospital records for patients who had THR with primary dx of OA. Patients were from rural and urban areas of Iceland.	M/F. 35 yrs and older. Have clear radiograph of both hips. Excluded those with signs of secondary OA (congenital dislocation/dysplasia, Perthes' disease, slipped epiphysis).	N=1,530	1992 -1996	PHYS-dx	Hip OA: 10.8%.
[72]	Quintan, Arostegui, et al.	2008	OA (hip, knee)	Spain (Province of Bizkaia (Basque Country) region in northern spain)	Population-based in general practice [qu're (KHOA-SQ), clinical exam with OS, X-rays]	Basque Department of Health Registry includes all covered by the National Health System (100% of pop in Basque). Stratified random sampling by sex and age. Residents in urban region with a pop of 1,125,000; 23.6% are 60 yrs or older.	M/F. 60 yrs and old. Covered by the National Health System. Excludes those who did not have a valid postal address or telephone number and who had severe physical and mental illness.	N=11,002; n=7,577 (Qu're)	Apr 01, 2002 to Dec 31, 2003	Self-Reported. Dx confirmed by an OS (ACR and ARA criteria).	41.8% had KHOA-SQ results indicative of knee OA (19.3%) or hip OA (8.3%) or both (14.2%)
[75]	Nevitt, Xu, et al.	2002	OA (hip)	China (Beijing) and USA	**The Beijing OA Study (BOA):** Population-based, longitudinal study (Interview with qu're and clinical exam). **Study of Osteoporotic**	**BOA:** 3 central districts in Beijing. Approx 445,000, 60 yrs and older, lived in the central districts of Beijing in 1995. Door-to-door canvassing identified 2,180 age-eligible subjects. **SOP:** 9,704 primary older white women recruited from Sep 1986 - Oct 1988 using	**BOA:** M/F. 60 yrs and older. Excluded subjects reporting RA, taking second line drugs or suspected as having RA via radiographic exam. **SOP:** White women. 65 yrs and older. **NHANES-I:** White M/F. 60-74 yrs.	**BOA:** N=1,646 (interview) & 1,506 (interview + clinic exam); n=1,492 (614 males & 878 females). **SOP:** N=7,998;	BOA (Jan 1998 - Mar 2000)	Self-report. Dx confirmed by 2 RTs via radiographs.	**Symptomatic hip OA** in the **BOS:** approx 1% for both men and women, 60-89 yrs **Symptomatic OA** in women in **SOF:** 2.2% Too few subjects in the **NHANES-I** to provide reliable estimates of symptomatic hip

Ref #	Author	Year	Disease	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop and sample)	Year of Data Collection	Method of dx	Crude Prevalence
					Fractures (SOP): Cohort study, population-based (multi-center). **NHANES-I:** Population-based survey.	population-lists in 4 cities (Baltimore, Pittsburg, Minneapolis, and Portland). Subjects were classified as having hip OA if discharge abstract or operative record indicated a THA as treatment with no mention of avascular necrosis or hip fracture. **NHANES-I:** Multi-stage probability sample representative of the US white population.		n=125 with THA treatment for OA (females only); **NHANES-I:** N=316; n=314 (156 males & 158 females)			OA prevalence
[76]	Sudo, Miyamoto, et al.	2008	OA (knee)	Japan (Miyagawa in central Mie Prefecture)	Population-based (Qu're)	Community inhabitants, elderly, and living in a typical mountain village in central Mie Prefecture, Japan	M/F. 65 yrs old or older. Residing in Miyagawa.	N=1,513; n=598 (205 males & 393 females)	Unknown	Self-reported. Dx confirmed by an OS via radiographs.	Symptomatic knee OA: 21.2%
[81]	Jamshidi,Tehrani-Banihashemi, et al.	2008	OA (hand)	Iran (Tehran)	Longitudinal, population-based (WHO-ILAR Community-Oriented Program for Control of Rheumatic Diseases (COPCORD) Study)	Mixed ethnic group of Caucasians, Turks, East Asians and Semites in an urban city. Multi-stage sampling. Divided in 22 districts. Clusters formed from 50 randomly selected addresses. 90-100 households from each cluster.	M/F. 15 yrs and older. Any complaints of MSK symptoms (including pain or any extra-articular manifestation of rheumatic disease).	N=10,291; n=303	2003	Self-report. Dx confirmed by a RT.	Clinical hand OA: 2.7%

Ref #	Author	Year	Disease	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop and sample)	Year of Data Collection	Method of dx	Crude Prevalence
[82]	Al-Arfaj, Alballa, et al.	2003	OA (knee)	Saudi Arabia (Al-Qaseem)	Population-based (Qu're, interview by GP & exam by RT)	Rural and urban centers with a pop of 662,000 (1992 census). The province divided into 3 strata based on pop size. Random samples or sampled with probability proportionate to size. A total of 1,000 households were selected.	M/F. 16 yrs and older.	N=10,406; n=5,894	Unknown	Self-report of MSK symptoms. Dx confirmed by RT (ACR criteria).	Knee OA: 13%. However, most of the household members were young, so this underestimates the prevalence.

Table 4D: Rheumatoid Arthritis Prevalence [N=29*]

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
[86]	Gabriel, Crowson, et al.	1999	USA (MN – Rochester county)	Admin Data	All residents seeking medical care (link to medical records from health care providers for the local pop, including the Mayo Clinic and its affiliated hospitals, the Olmsted Medical Group, the Olmsted Community Hospital, local nursing homes and the few private practitioners)	M/F. 35 yrs and older. Computerized diagnostic index for any dx of AR between Jan 1955 - Jan 1985. Excluded degenerative AR and OA.	N=1,878; n=425	1955-1985	Phys-dx (1987 ACR criteria)	1,073 per 100,000 pop (1985)
[87]	Linos, Worthing-ton, et al.	1980	USA (MN)	Admin Data	All residents seeking medical care (link to medical records from health care providers for the local pop, including the Mayo Clinic and its affiliated hospitals, the Olmsted Medical Group, the Olmsted Community Hospital, local nursing homes and the few private practitioners)	M/F. All ages. Patients who either at initial diagnosis or at some time during their follow-up fulfilled the ARA criteria for probable, definite or classic RA. Lived within the city limits for at least one year before the prevalence date (Jan 1, 1975) or before the data of his/her death.	N=627; n=400	1950-1974	Phys-dx (ARA criteria)	7.3 per 1000 for both sexes **(all ages)** 10.2 per 1000 for both sexes **(15 yrs and older)**
[83]	Rasch, Hirsch, et al.	2003	USA	Population-based survey [National Health and Nutrition Examination Survey (NHANES-III)]	A multistage stratified, probability cluster design to select a sample representative of civilian pop aged 2 months and older and residing in 50 States. Oversampled children under 5 yrs, adults 60 yrs and over, blacks and Mexican Americans to improve subgroup estimates. Total=33,994.	M/F. 60 yrs and older. Having completed the mobile examination centre (MEC) exam.	N=6,596; n=5,302	1988-1994	Self-report & Phys-dx (1987 ACR criteria & use of DMARDs)	**Method 1** (n of k rule where 3 of 6 ACR criteria are met or 3 of 5 if RF titers are missing): 2.03% **Method 2** (ACR classification tree algorithm - Arnett et al): 2.15% **Method 3** (Method 2 modified to include use of DMARD): 2.34%

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
84	Simard & Mittleman	2007	USA	Population-based survey (NHANES-III)	A multistage design based on probability, cluster and stratified sampling (households). Adults over 60 yrs, blacks and Mexican Americans were over sampled to improve subgroup estimates.	M/F. 60 yrs or older. USA civilian pop. Institutionalized pop. was excluded	n=5,302	1988-1994	Self-report, phys-dx (1987 ACR criteria with modification)	144 participants, 60 yrs and older had RA
85	Del Puente, Knowler, et al.	1989	USA (AZ)	Population-based, longitudinal study (clinical examination, radiographs)	The Pima and Papago Indians, two closely related tribes, which inhabit the Gila River Indian Community in AZ	M/F. Half- to full-blood Pima and/or Papago Indians. 20 yrs or older. Lived on the reserve during Mar 1, 1967 to Aug 31, 1986.	N=3,868; n=3,096	1967-1986	Phys-dx (ARA criteria or the criteria for inactive RA as proposed by the Council for International Organization of Medical Sciences)	**Active RA:** 2.3% (on Mar 1, 1969) and 1.3% (Mar 1, 1984) **Active and inactive** RA (definite & classical): 3.45% (Mar 1, 1984)
88	Symmons, Turner, et al.	2002	United Kingdom (Norfolk)	Population-based from general practice (Screening qu're and clinical observation)	11 general practices reflecting urban, rural and coastal pops within the former Norwich Health Authority (approx 600,000 pop) participated in the study. <1% of the pop is comprised of ethnic minorities. Stratified sample (age-sex bands) and random selection of subjects. This study is in the same setting where the Norfolk Arthritis Register is set (a primary-care based inception cohort of adults with inflammatory polyarthritis with onset since 1990).	M/F. 16yrs +. Patients with psychological distress and terminally ill were excluded.	N=7,050 (screening); n=1,025 (self-report RA)	Unknown	Self-report of PHYS-dx. Dx was confirmed by a research nurse (1987 ACR criteria & X-ray of hands and feet).	Extrapolating data to the pop of the UK yields an estimate of the overall prevalence of RA in adults to be 0.81%
187	Spector, Hart, et al.	1993	United Kingdom (Chingford in East London)	Population-based from general practice	From an age and sex register of a general practice in Chingford, East London (11,000 general practitioner group practice)	Females only. 45-64 yrs. Examined by doctor for clinical signs of RA.	N=1,353; n=1,003	1989 and 1990	Phys-dx (clinical signs of RA symptoms and radiographs of hand, 1958 ARA criteria).	1.2% (women only).

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
[188]	Mac Gregor, Riste, et al.	1994	United Kingdom (Manchester)	Population-based from general practice (Qu're, clinical exam by RT, radiographs of hands and feet)	The Moss Side and Hulme districts of Manchester (urban area) where the estimated pop is 60,000. This area has a high proportion of Black-Caribbean origin. Patient lists were complied for 7 general practices' age and sex register and the Family Health Service Authority.	M/F. 18 yrs and older. Whites or Black-Caribbean from inner city Manchester. For each black, the next consecutive age, sex-matched non-Black was selected to form the comparison group. Other ethnic groups were excluded.	N=1,851, n=1,046 (Black-Caribbean) & N=1,829 (non-Black), n=997 (whites)	1990-1992	Phys-dx	Black-Caribbeans: 2.9/1,000 Whites: 8.0/1,000
[91]	Saraux, Guedes, et al.	1999	France (Brittany, a large region in Western France)	Population-based survey	Pop estimate of 2,867,911 (1996 census data). Random sample drawn from the official list of phone numbers. 2,340 households were contacted and interviews were conducted with each adult member of the household.	M/F. 18 yrs and older. Having a residential phone number. Excluded businesses. Includes RA and SpA.	N= 2,873 from 1,857 households; n=795 having articular or vertebral pain	Unknown	Self-report of PHYS-dx. Dx confirmed by a GP or RT when required.	**RA:** 0.62% **SpA:** 0.47% The minimum prevalence (estimated using initial group =3,189): **RA:** 0.53%; **SpA:** 0.41%
[92]	Cimmino, Parisi, et al.	1998	Italy (Chiavari, a small town located on the Ligurian coast, north west Italy)	Population-based from general practice (Screening qu're and clinical examination)	Chiavari has a pop of 28,584 and surrounded by farmland. Subjects were chosen from four general practices in the town. In Italy, almost all citizens are registered with a GP of the National Health System (NHS).	M/F. 16 yrs and older. Dx of RA made in hospital and in outpatient clinic. List of patients who were entitled to free drugs for RA under NHS were also screened.	N=4,456; n=3,294	1991-1992	Self-report. Clinical assessment by RT (radiographs of hand, blood test). Review of medical charts when required.	0.33% in the general population The minimum estimates were 0.21% to 0.26% Identifying an extra 5 individuals via clinical records who had RA did not change the cumulative prevalence 0.36%

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
[94]	Riise, Bjarne, et al.	2000	Norway (Troms, northern Norway)	Admin Data (ICD-9 code 714.0 through 714.9)	County of Trom has ethnic groups: Sami, Finns and Norsemen. 105,358 inhabitants over 20 yrs in 1989 and 110,215 in 1994 (census data).	M/F. 20 yrs and older. All records with RA registered at the Department of Rheumatology at the University Hospital during the years 1987-1996. Excluded juvenile RA, undifferentiated polyarthritis, cases not meeting ARA criteria for RA and misfiled records.	N=2,282; n=411 (1989) and n=513 (1994)	1987-1996	Phys-dx (1987 ARA criteria)	0.39% (1989) 0.47% (1994)
[93]	Kvien, Glennas, et al.	1997	Norway (Oslo)	Admin Data (ICD-9 code 7.14 or 714.9) & Population-based Survey	Oslo county had a pop of 356,486 in 1994. Random selection for questionnaire mail-out.	M/F. 20-79 yrs with a residential address in Oslo. Part of the Oslo-register (having been seen by a one of the two rheumatology depts since 1980). Excluded juvenile AR (disease onset before the age of 16).	n=1,333 (with RA in register) N=10,000; n=5,886 (qu're)	1991 for inclusion from admin data 1994 for qu're	Self-report and clinical exam by a RT	**Prevalence from the RA-register:** 0.375%. However, was 0.437% after adjusting by a factor of 1.17 for incompleteness. **Prevalence of the population survey:** 0.595% (when using the respondents in the denominator, n=5,886) or 0.350% (when using the total pop in the denominator, n=10,000).
[90]	Simons-son, Bergman, et al.	1999	Sweden (Loholm and Halmstad in southern Sweden)	Population-based study	Part of a population-based study of chronic pain in the MSK system. All adults randomly selected from the office pop register. Sample stratified by age, gender and municipality.	M/F. 20-74 yrs and residing in the municipalities of Loholm and Halmstad (5.6% of the pop).	N=3,928; n=2,425	1995	Self-report of PHYS-dx. Dx confirmed by a RT (1987 ARA criteria, x-rays of hands and feet).	0.51% in the total pop

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
189	Aho, Helio-vaara, et al.	1989	Finland (40 areas)	Population-based survey (Mini Finland Health Survey)	Two-stage cluster sample. Randomization performed with respect to geographical area, population density, and the proportion of industrial and agricultural workers in the pop.	M/F. 30 yrs and older.	Screening phase: N=8,000; n=7,124 (3268 males & 3856 females)	1978-1990	Self report and PHYS-dx (measures for grading deformity, mobility, and tenderness of all limb joints).	Clinical RA: 1.9%
95	Hanova, Pavelka, et al. **(Abstract Only)**	2006	Czech Republic (Ceske Budejovice & Cheb)	Admin Data (registers of patients of participating RTs and other specialists)	Population-based on two regions (town of Ceske Budejovice & district of Cheb) of Czech Republic with total pop of 186,000 inhabitants	M/F. 16yrs and older. All living patients with dx of RA, juvenile AR, and gout before Mar 1, 2002. Permanent address in study area.	n=947 (RA) n=425 (gout)	2002 and 2003	PHYS-dx	**RA:** 610/100,000 **Gout:** 300/100,000
96	Kiss, Lovei, et al.	2005	Hungary (towns and villages of South-Transdan-ubian region)	Observational population-based (Qu're and clinical exam)	Stratified sample representative of the demographic and social characteristics of the regional pop (South-West Hungarian region) regarding age, gender, and urban/rural residence. Quoted sample provided by the Hungarian Central Statistical Office of Baranya County by a multistep procedure.	M/F. 14 - 65 yrs.	N=10,000 (4,485 males & 5,515 females)	May - Jun 2002	Self-report. Dx was confirmed by medical history and physical exam (1987 ARA criteria).	0.37%
97	Adoma-viciute, Pileckyte, et al.	2008	Lithuania (Vilnius and Kaunas)	Population-based (Telephone interview to screen, interview by RT, clinical exam)	Individuals living in two largest urban cities of Lithuania. Randomly selected from telephone books: 3,370 (Vilnius) and 3,172 (Kaunas). First person 18 yrs and older answering call were interviewed.	M/F. 18 yrs and older. Living in households with a phone. Having present or past pain in joints or pain in neck, back or buttocks. Excluded business telephone numbers.	N=6,524; n=2,450 (stated symptoms) n=43 (clinic exam)	Sep - Oct 2004	Self-report. Dx confirmed by a RT (ACR criteria for RA and ESSG criteria for SpA).	**RA:** 0.92% **SpA:** 0.64%. Out of these, 10 cases were **PsA**, 4 **AS** and 4 **undifferentiated SpA**.
98	Drosos, Alamanos, et al.	1997	Greece (District of Ioannina in northwest Greece)	Admin Data	Records of patients at rheumatology clinics of university and general hospitals and private clinics until Dec 31, 1995. Total pop of district was 158,193 and 128,916 were 16 yrs and older (1991 census).	M/F. 16 yrs and older. Past or present patient at two hospitals or a private RT.	N=428	1987-1995	Phys-dx (1987 ARA criteria)	3.40 per 1,000 inhabitants

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
[99]	Shichika-wa, Inoue, et al.	1999	Japan (Wakayama - Kamitonda district)	Community-based, longitudinal survey	All residing in Oka and Iwata areas in the Kamitonda district in Wakayama, Japan. Approx 3,000 living in the area during the study period. Distribution by sex and age of the sample was similar to that of the general Japanese pop.	M/F. All Ages.	N=3,000	Sep 1965-Aug 1996	Self-report. Dx was confirmed by HCP via medical history and physical exam (ARA criteria used was the 1961 Rome criteria).	Per 1,000 Kamitonda pop: 2.1 (1965); 4.7 (1969); 3.1 (1972); 3.0 (1975); 3.5 (1980); 3.5 (1985); 2.1 (1988); 2.1 (1992); 2.0 (1996)
[100]	Lau, Symmons, et al.	1993	Hong Kong	Community-based (Screening qu're, clinic exam, radiographs)	Residents of 2 government housing blocks in Shatin, a new town in the New Territories of Hong Kong. Housing blocks were for families with low income and included flats for the elderly.	M/F. 16 yrs and older. Only Chinese patients who could communicate in the southern dialect.	N=2,000	Unknown	Self-report. Dx confirmed by PHYS via clinical exam and radiographs (Rome, New York and 1987 ACR criteria).	0.35% This is significantly lower than published data for European Caucasians (standardized morbidity ratio= 0.27)
[101]	Malaviya	1993	India (State of Haryana - 5 villages in the township of Ballabhgarth, 40km South of Delhi)	Community-based (House-to-house visits)	Rural population (villages included: Dayalpur, Mujeri, Atali, Chandawali, Chainsa). Total pop of the five villages at the time of the survey was 85,206 (as per the village register).	M/F. 16yrs and older.	N=44,551; n=39,826 3,393 (self-report possible RA) with 290 (ARA criteria)	Unknown	Self-report. Dx confirmed by PHYS (1987 ARA criteria).	0.75%
[102]	Darma-wan, Muirden, et al.	1993	Indonesia (central Java)	Longitudinal study, population-based (part of the WHO-ILAR COPCORD study)	Tropical and developing country. 2 rural villages with pop of 2,499 women and 2,184 men and two urban cities with pop of 590 women and 481 men considered similar to the rural and urban populace of Java. No social stratification of the sample pop was carried out.	M/F. 15 to 65 yrs.	n=4,683 (rural) & n=1,071 (urban) 82 men and 129 women reported peripheral joint pain	Unknown	Self-report. Dx confirmed by RT (serology tests, X-rays, using ARA criteria (1956)).	**Definite RA:** 0.2% (rural) and 0.3% (urban) **Definite and probable RA:** 0.3% (rural) and 0.5% (urban)

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
[103]	Spindler, Bellomio, et al.	2002	Argentina (Tucuman region in city of San Miguel, northwest region of Argentina)	Admin Data	San Miguel de Tucumán (capital) has 540,843 inhabitants of which 352,089 are aged 16 yrs (1991 census). Local private practices or community hospitals were selected and outpatient and hospitalization medical records were used to obtain a sample of RA patients.	M/F. 16 yrs and older. Attending a local private or community practice for RA. Excluded patients with permanent residence outside the city limits.	N=695	Jan 1998 - Dec 1999	RT-dx (1987 ACR criteria)	1.97 per 1,000 inhabitants
[104]	Moolen-burgh, Valken-burg, et al.	1986	Africa (Lesotho in southern Africa)	Longitudinal study, population-based (linked with a point prevalence study of pulmonary tuberculosis by the SAMRC Tuberculosis Research Institute at Pretoria)	Stratification of the 4 topographical zones of Lesotho. 8 villages (rural) were selected randomly from the 1976 census report: 4 (lowlands), 2 (foothills), and 1 (mountains and Orange River Valley). Villages that were harbours with less than 400 inhabitants were grouped with neighbouring villages. The smallest villages or combination contained 200 people and the largest 1,779.	M/F. 15 yrs and older.	N=1,752 (615 men & 1,137 women); n=1,070 (280 men & 790 women) 3 fulfilled criteria for definite RA (all women 55 yrs and older)	Unknown	Self-report. Dx confirmed by PHYS (ARA criteria and Rome criteria)	No cases of **inactive RA** were encountered **Definite RA:** 0.38% (females) and 0.28% (both sexes) **Definite and probable RA:** 1.8%
[105]	Kacar, Gilgil, et al.	2005	Turkey (Antalya, south of Turkey)	Population-based (face-to-face structured interview & clinical exam by specialist). Part of the epidemio-logical study on rheumatic diseases.	Individuals residing in the urban area with a pop of 508,840 (1997 national census). Randomized cluster sampling based on the records of the local Ministry of Health. Private household files in the Turkish health care system kept in these practices were selected by systematic sampling from 157,155 households.	M/F. 16 yrs or older. Excluded barracks, dormitories, hospitals, institutions and commercial places such as shops and cafes.	N=3,215; n=3,173 168 self-reported AR with 12 clinical dx of RA (11 were female)	Fall 2000 - Winter 2001	Self-report. Dx confirmed by RT (1987 ACR criteria).	Clinically diagnosed RA: 0.38%

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
106	Hameed, Gibson	1997	Pakistan (Districts of Karachi) UK (South east and east London & Luton)	Observational population-based (Interview and clinical exam)	**In Pakistan:** Poor (Orangi) and affluent (Gulshan) districts of Karachi were sampled and house-to-house surveys were conducted with all residents where possible. **In England:** Pakistanis living in Luton as well as South East and East London were identified from several GPs lists. House-to-house surveys were conducted in the same manner.	M/F. **For Pakistan**, those residing in districts of Karachi. **For England**, only Pakistanis families whose senior members were born in or had been residents of England for at least 10 yrs. Thus, residents who were either of Indian extraction or had lived in England for <10yr were excluded.	England: n=2,056 (6 RA ages 23-68yr - 5 females & 1 male) Pakistan: n=4,232 (6 RA)	Unknown	Self-report. Dx confirmed by PHYS via clinical exam (blood tests, x-rays, etc).	**In England:** 0.3% **In Pakistan:** 0.14% Few additional inflammatory joint diseases: 2 PSA (1 in ENG & 1 in PK); 1 SLE (in ENG); 2 AS (1 in ENG & 1 in PK); & 1 gout (in ENG)
108	Hameed, Gibson, et al.	1995	Pakistan (Orangi & Gulshan, Karachi)	Observational population-based (Qu're).	A Kachi abadi (aka Orangi=poor) with ethnic background of residents similar to that of Gulshan-e-Iqbal (=affluent), a district with a large business and professional pop whose mode of living would be judged comfortable by Western standards. # of households = 588 (Gulsham) & 667 (Orangi).	M/F. All ages.	N=4,232 6 definite RA in 242 self-reporting joint symptoms (2 cases in Orangi and 4 cases in Gulshan)	Unknown	Self-reported and clinical examination. 4 weeks duration of pain and swelling at any time.	1.42 per 1,000 0.9 per 1,000 persons (Orangi) 1.9 per 1,000 persons (Gulshan)
107	Al-Dalaan, Al Ballaa, et al.	1998	Saudi Arabia (Al Qassim region in the Central part of Saudi Arabia)	Observational population-based (house-to-house interviews)	Based on 1992 census figures, Al Qassim region has a pop of 600,000, with a national growth rate of 5%. Region divided into three strata according to population density. Random samples or selected with probability proportionate to size. Each village was treated as a cluster.	M/F. 16 yrs and older.	N=5,891 (2,674 males & 3,197 females) 13 RA (dx ACR criteria)	Unknown	Self-report and GP/nurse confirmed (interview and radiological assessments, 1987 ACR criteria)	0.22% in the adult population
109	Pountain	1991	Oman	Population-based survey	Oman is a country of about 1.3 million people with the majority being Arabs, living in rural areas **House-to-house population-based survey:** target pop drawn from 10 areas of Oman, selected to	M/F. 16 yrs and older	N=1,925 **House-to-house surveys:** 7 definite RA (ARA criteria)	Jan to Dec 1987	PHYS-dx (ARA criteria)	**House-to-house surveys:** 3.6/1,000 **Surveys in Health Institutions:** *Hospital Rheumatology clinics:* Based on

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of dx	Crude Prevalence
					represent different geography, ethnicity and lifestyle. Data were collected on all residents of each household. **Survey of health institutions:** ***Screening clinics*** were conducted in 4 rural health-centres in different parts of the country. In the capital, Muscat, data were collated on all Omani RA patients attending the ***hospital rheumatology clinics*** during 1987. In addition, ***3 centres of primary care in Muscat*** (main hospital general out-patients dept representing 1/3 of the state primary care and two private clinics representing approx 3% of private primary care) were monitored for a 2-week period for inflammatory AR.		***Rural screening clinics*:** 19 definite RA ***Health Institutions of Muscat:*** Of the Omani patients with RA visiting these clinics during 1987, 28 were residents of Muscat			the numbers of RA cases and an estimated pop of 113,000 in Muscat, the hospital figures suggest a point prevalence of 0.25 per 1000 ***Hospital, out-patient department*** *and* ***two private clinics***: During the 2-week survey, no cases of RA were seen

** One is an abstract*

Table 5D: Ankylosing Spondylitis Prevalence [N=5]

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size	Year of Data Collection	Method of Dx	Crude Prevalence
[190]	Bakland, Nossent, et al.	2005	Norway (Troms and Finnmark)	Admin Data	Cohort study of all patients registered with a dx of AS at the University Hospital of Northern Norway, the sole rheumatology dept serving the counties of Trom and Finnmark. The dept has a catchment area serving an avg pop of 21,000. The region is rural with Troms being the largest city with 60,000 citizens.	M/F. 16 yrs and older. Records of all patients registered in the hospital database with a dx of AS. Patient records and radiographs of SI joints fulfilling the modified New York criteria for AS were included. Patients without definite radiological sacroiliitis were excluded. Patients with sacroiliitis secondary to psoriasis or IBD were classified as having secondary AS.	N=217,000; n=687	1960-1993	PHYS-dx (ICD-9 codes 720 and M45 as well as the modified New York criteria)	**Primary AS:** ***Period prevalence:*** 0.26%; ***Point prevalence:*** 0.036% (Jan 1970) 0.10% (Jan 1980) 0.21% (Jan 1990) **Primary/secondary AS:** ***Period prevalence:*** 0.31%; ***Point prevalence:*** 0.043% (Jan 1970) 0.122% (Jan 1980) 0.26% (Jan 1990)
[113]	Johnsen	1992	Norway	Population-based survey (Screening, qu're & clinical exam)	Samis (Lapp) pop of the municipalities Karasjok and Kautokeino in north Norway. In 1988, there were 5,588 inhabitants living in these 2 municipalities.	M/F. 40–62 yrs. All subjects aged 30-39 yrs who had been invited to an earlier pop study in 1977 and were still a resident in the county. Also, a 10% random sample of persons aged 20-39 yrs not invited to the former study. Only patients with definite x-ray changes in the sacroiliac joints were accepted as definite AS.	N=1,347 (survey); n=188 (exam) 11 AS (7 males & 4 females)	Unknown	Self-report. Dx confirmed by PHYS-dx (New York criteria (1973) and definite x-ray changes).	1.8%
[112]	Gran, Husby, et al.	1985	Norway (Tromso)	Cross-sectional, population-based (Screening, qu're & clinical exam)	Young-middle aged pop in Tromso, northern Norway. Comprised of three ethnic groups: Lapps, Finns, and Norsemen. In 1979, there were 45,376 inhabitants.	M/F. 20-49 yrs for females and 20-54 yrs for males. Excluded patients with juvenile onset AS and patients with accompanying psoriasis or inflammatory bowel disease. Only patients with definite x-ray changes in the sacroiliac joints were accepted as definite AS.	N=21,329; n=14,539 (survey) n=375 (exam + X-ray) with 26 (22 males & 5 females) having definite AS	1979-1980	Self-report. Dx confirmed by PHYS-dx (New York criteria and definite X-ray changes).	1.1% to 1.4% (assuming that those not reporting back pain did not have AS). Range results from adjustments for differences in back pain categories (two positive answers versus one).
[114]	Kaipiainen-Seppanen,	1997	Finland	Population-based	Representative Finnish adult pop in the years 1978-1980.	M/F. 30 yrs and older.	N=8,000; n=7,217	1978-1980	Self-report. Dx confirmed by	0.15%

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size	Year of Data Collection	Method of Dx	Crude Prevalence
	Aho, et al.			(Qu're and clinical exam)			11 cases of clinically significant AS		PHYS-dx (clinical findings and radiographic exams).	
115	Onen, Akar, et al.	2008	Turkey (Balcova and Narlidere districts of Izmir)	Population-based (Interview + Clinic exam)	These 2 urban areas, served by 8 health centers, have an estimated pop of 118,368, of whom 84,504 are aged 20 yrs+. The pop was divided into 845 clusters each consisting of 100 persons. 26 clusters were selected randomly by computer. Household interviews were conducted.	M/F. 20 yrs or older.	N=2,887; n=2,835 (interview) ; n=120 (clinic exam) 31 SpA with 14 AS	Unknown	Self-Report or PHYS-dx. Dx was confirmed by a RT (modified New York criteria (1984) & ESSG criteria (1991)).	AS: 0.49% SpA: 1.09%

Table 6D: Psoriatic Arthritis Prevalence [N=8]

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of Dx	Crude Prevalence
[118]	Shbeeb, Uramoto, et al.	2000	USA (Minnesota - Olmsted County)	Admin Data	All residents of Olmsted County with inpatient and outpatient medical records. Using the Rochester Epidemiology Project computerized medical record system to identify any dx consistent with psoriasis and/or PsA.	M/F. 20 yrs and older. A dermatologist dx of psoriasis or PsA between 1982 & 1991. PsA was defined as inflammatory AR associated with a definite dx of psoriasis. Excluded seropositive RA, SLE, crystal induced AR, Reiter's syndrome, AR associated inflammatory bowel disease and inflammatory OA.	N=1,844	Jan 1, 1982 - Dec 31, 1991	Dermatologist - dx	1,056 psoriasis cases with dx confirmed by a dermatologist of which 66 were cases of PsA (34 female & 32 male)
[117]	Gelfand, Gladman, et al.	2005	USA	Population-based survey (National Psoriasis Foundation Survey)	Adults from the US pop were selected randomly to participate in a telephone interview via random digit dialling techniques. 11,000 cities and towns were part of the sampling schema.	M/F. 18 yrs and older. Having a residential number from the contiguous 48 states.	N=27,220 71 had psoriasis and PsA	Nov - Dec 2001	Self-report of PHYS-dx as having both psoriasis and PsA in the past	0.25% in the US population
[122]	Radtke, Reich, et al.	2009	Germany	Clinical sample [National Health Services Study on Psoriasis Vulgaris 2007 - PsoHealth]	Nationwide, multi-centre survey or psoriasis patients in dermatological hospitals and community-based private dermatological practices in Germany	M/F. 18 yrs and older. Patients with any form of psoriasis who were willing to participate. Both physician and patient forms had to match.	N=3,400; n=2,038 (PHYS). N=3,400; n= 2,040 (patient). n=2,009 (evaluation in study).	2007	PHYS-dx (GRAPPA criteria)	Present or probably present in 19% of patients [14.8% (previously confirmed) and 4.2% (clinically probable)]
[123]	Reich & Kruger	2009	Germany	Clinical sample	Sampled patients confirmed with dx of psoriasis vulgaris who were enrolled at 30 dermatological private practices and 18 dermatological outpatient clinics in Germany. Adult patients with confirmed dx of psoriasis and with suspected joint disease were asked to attend one of the RT sites for further evaluation.	M/F. 18 yrs and older. Patients of the dermatological sites for psoriasis. Excluded those noncompliant or unwilling to cooperate, language barrier, previous participation in this epidemiological evaluation, and employee of the sponsor or family member of the staff at the investigational sites.	N=1,527; n=1,511 of which 612 had PsA (fulfilling at least one criteria of possible joint involve-ment)	Nov 2004 - Jun 2005	RT-dx (Moll & Wright criteria (1973))	266 of 432 (61.6%) patients examined by a RT were newly diagnosed with PsA (17.6% of all patients) Thus, in the entire pop of patients with plaque-type psoriasis, the total prevalence of PsA was 20.6%

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of Dx	Crude Prevalence
[124]	Gisondi, Girolomoni, et al.	2005	Italy (Rome)	Clinical sample [part of the Italian Multipurpose Psoriasis Research on Vital Experiences (IMPROVE) study]	Sample pop selected from the IMPROVE study; a large Italian sample of patients of psoriasis hospitalized at the Dermatological Institute IDI-IRCCS of Rome. Patients admitted with a dx of psoriasis were contacted by study dermatologist.	M/F. 18yrs and older. Absence of mental illness, with at least 5 years of education, and able to read Italian. First hospitalization for psoriasis since the date of the beginning of the study.	N=1,721; n=936	Feb 2000-Feb 2002	Dermatologist -dx (ESSG criteria (1991))	7.7%
[119]	Madland, Apalset, et al.	2005	Norway (Horda-land region, Western Norway)	Admin data [ICD-10 codes: arthropathic psoriasis (L40.5), psoriasis arthropathies (M07.0-3), & sacroiliitis/ inflammatory spondylo-pathies (M46.1,8-9)]	Hordaland had 441,660 inhabitants on Jan 1, 2003 (9.7% of the Norwegian pop), among whom 321,454 were 20 yrs or older (Statistics Norway). 54% lived in Bergen, the regional center. PsA patients were selected from 4 rheumatology centers that served the pop and 2 private rheumatologists in Bergen.	M/F. 20 yrs and older. A dx of PsA based on the ICD criteria selected. Cases with psoriasis and peripheral arthritis and/or radiographic evidence of spondyloarthritis were considered to have PsA. Those with other arthritides were excluded.	N=634	1999-2002	PHYS-dx	1.95 per 1,000 adult inhabitants

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of Dx	Crude Prevalence
[120]	Love, Gudbjorns-son, et al.	2007	Iceland (Reykjavik)	Admin Data	Patients with PsA in the Reykjavik area, where 63% of the adult pop resides. According to census data for 2003, 134,253 over age 18 yrs lived in Reykjavik. Patients recruited from 2 sources: 1) **a database** of patients with verified psoriasis (from ongoing studies) containing information on about 1% of the Reykjavik pop. 2) **an electronic registry** of patients admitted to the Landspitali University Hospital between 1981 and 2001.	M/F. 18 yrs and older. **Database:** Living in the Reykjavik area in 2003, who reported a RT-dx of PsA and who did not have only pustular psoriasis. **Registry:** Individuals, who reported dx of PsA and lived in the Reykjavik area in 2003. **For this study, inclusion derived from the Swedish PsA Registry** e.g., patient must have a dermatologist-dx of psoriasis or have psoriatic skin lesions at time of exam. Patients also must not have active AR and taking remitting drugs at time of study. Patients who reported a dx of a rheumatic disease other than PsA were excluded.	**Database:** N=1,386; n=131 **Registry:** N=98 Thus, N=220 potential PsA patients for evaluation; n=113 having verified PsA	1981-2001	Self-report of PHYS-dx. Dx confirmed by a RT or a resident physician trained by a RT (ACR criteria).	164 per 100,000 (includes 220 with self-reported or hospital-dx of PsA) Conservative estimate of 98 per 100,000 (assuming that no case of PsA would have been confirmed among the 64 individuals who did not come in for re-evaluation of their disease). Conversely, if all these patients had PsA the estimate would be 145 per 100,000.
[125]	Jamshidi, Bouzari, et al.	2008	Iran (Tehran)	Clinical sample (chart review & clinic exam)	Patients were recruited from those with clinically diagnosed psoriasis and referred to Razi Hospital	M/F. 13 yrs and older. Clinical dx of psoriasis.	N=320 (179 males & 141 females)	May 2003 - April 2004	Dermatologist or RT-dx (Moll and Wright criteria)	9.1%

Table 7D: Lupus Prevalence [N=26]

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size	Year of Data Collection	Method of Dx	Crude Prevalence
[126]	Bernatsky, Joseph, et al.	2007	Canada (Quebec City)	Admin Data (ICD-9 code: 710.0)	RAMQ (Regie D'assurance Maladie du Quebec) & MEDECHO (Maintenance et Exploitation des Donnees pour l'Etude de la Clientele Hospitaliere). Physician billing and hospitalization databases covering all health care beneficiaries (approx 7.5 million as of 2004).	M/F. All ages. **RAMQ data (physician):** >=2 dx of SLE (ICD-9 code 710.0), >=8 weeks apart but within 2 yrs span. **MEDECHO data (hospital):** >=1 discharge with dx of SLE (primary or non-primary). All prevalent cases must be between 1994 & 2003, who remained alive as of Dec 31, 2003.	**PHYS billing (M1):** 2,455 SLE cases **Hospital discharge (M2):** 2,394 SLE cases **Both:** 3,825 SLE cases	1989-2003	PHYS-dx Only 23.7% cases were identified by M1 & M2. 43.8% were identified with M2 and not M1. 32.4% were identified by M1 and not by M2.	**Physician billing database**: 32.8 per 100,000 (in 2003) **Hospital discharge data**: 31.9 per 100,000 (in 2003) **Both:** 51.0 per 100,000 for overall population
[127]	Peschken & Esdaile	2000	Canada (Manitoba)	Admin Data & Survey	Regional arthritis center database and medical records of specialists (e.g., RTs) with > 1 patient with SLE. GPs (randomly selected from the MMA membership list) & 2 general internists (care to remote, primarily aboriginal) facilitated identification of SLE patients through caregiver surveys.	M/F. All ages. SLE dx must meet 1982 ACR criteria and have been diagnosed between Jan. 1, 1980 to Dec 31, 1996.	N=257 49 of the identified SLE cases were North American Indian	1980-1996	PHYS-dx (1982 ACR criteria)	For 1996, definite SLE: 22.1 per 100,000 42.3/100,000 for North American Indian compared to 20.6/100,000 for the remainder of the population
[129]	Naleway, Davis, et al.	2005	USA (Wisconsin - Marshfield)	Admin Data (ICD-9 code: 710.0)	Marshfield Epidemiological Study Area (MESA) is a 24-zip code region within the Marshfield Clinic primary service area. MESA residents (N=77,280) receive almost all medical care from this clinic. The electronic medical records were searched.	M/F. All ages. MESA residents with at least 1 dx of SLE (code 710.0). Definite SLE (>=4 ACR criteria). Excluded patients with incomplete medical records, miscoded dx and drug-induced lupus cases.	N=77,280; n=64 (having SLE on Dec 2001) 239 (at least 1 dx of SLE Jan 1999 to Dec 2001). 117 were definite SLE.	Jan 1991 - Dec 2001	PHYS-dx (1982 ACR criteria)	**Overall prevalence** (definite and incomplete): 130 per 100,000 **Point prevalence on Dec 1, 2001:** 82.8 per 100,000
[128]	Ward	2004	USA	Population-based [National Health and Nutrition Examination	Data from phase II of NHANES III 1991-1994; a multi-stage, stratified, clustered sampling scheme, with an over-sampling of	M/F. 17 yrs and older. Patients have to self-report PHYS-dx of SLE (definition 1) or self-report PHYS-dx of SLE with	N=20,050; n=40 (8 males & 32 females)	1988-1994	Self-report of PHYS-dx	**Self-report PHYS-dx:** 241 per 100,000 **Self-reported**

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size	Year of Data Collection	Method of Dx	Crude Prevalence
				Survey (NHANES III)]	young children, elderly, blacks, and Mexican Americans. Includes aged 2 months and older (N=33,994). Representative of the US civilian pop.	current treatment with antimalarials, corticosteriods, methotrexate, azathioprine, cyclosporine or cyclophosphamides (definition 2).				**PHYS-dx + treated SLE:** 53.6 per 100,000
[191]	Hochberg, Perlmutter, et al.	1995	USA	Population-based, epidemiologic case-control study	*Controls:* randomly selected telephone numbers in continental US *Cases:* residents of 41 of the 48 continental US, excluding Alaska; the vast majority of cases were from California, Maryland, and Pennsylvania Random-digit-dialling was used to identify 3 eligible cases per control.	Women only. 18 yrs and older. Eligible cases were women matched on race and age category (18-45, 45-64, 65+). Excluded non-working and business numbers.	N=16,607; n=4,304 n=15 with SLE 2 of 6 self-reported PHYS-dx of SLE had confirmed dx	Unknown	Self-report of PHYS-dx (confirmed via 1982 ACR criteria)	372/100,000 for women >=18 yrs **'Validated' SLE (ACR criteria):** 124/100,000
[131]	Nightin-gale, Farmer, et al.	2007	United Kingdom	Admin Data [General Practice Research Database (GPRD)]	GPRD contains primary care medical records, prescribing, and prevention records of 4-6% of the US pop. The medical cases of all patients with dx of SLE were reviewed in detail.	M/F. Who contributed at least 3 yrs of standard data during the study period. Medical records indicating dx of SLE, disseminated lupus or discoid lupus at any time.	N=4,615; n=1,538	Jan 1, 1992 - Dec 31, 1998	PHYS-dx (1982 ACR criteria & update (1997))	25.0/100,000 (1992) to 40.7/100,000 (1998)
[136]	Hochberg	1987	United Kingdom (England and Wales)	Population-based from general practice (third National Study of Morbidity Statistics from General Practice)	48 volunteer general practises in a regional distribution of England and Wales caring for 332,270 patients. Representative of pop in terms of age, sex and region.	M/F. All ages. Having a dx of SLE in England and Wales.	N=332,270 n=12 SLE (all females)	1981-1982	PHYS-dx (1982 ARA criteria)	6.5/100,000 (period prevalence with cases being all females)

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size	Year of Data Collection	Method of Dx	Crude Prevalence
[132]	Hopkinson, Doherty, et al.	1993	United Kingdom (Nottingham)	Clinical sample	Metropolitan community of Greater Nottingham, consisting of the districts of Nottingham, Broxtowe, Gedling, Rushcliffe, Hucknall ward of Ashfield. The pop of the area (similar to that of Nottingham District) based on 1988 mid-year estimates was 613,700. It has both urban and rural areas.	M/F. Various methods of ascertainment for patients with SLE e.g., patient registry, physician notification, inpatient medical records, investigation request cards processed by the immunology department, Nottingham renal unit's patients receiving or will be needing dialysis, etc.	n=210	May 1, 1989 - Apr 30, 1990	PHYS-dx (1982 ARA criteria)	1-year period prevalence: 24.0/100,000/ population/year
[134]	Samanta, Roy, et al.	1992	United Kingdom (Leicester city)	Clinical sample	Cases of hospital SLE were identified via various sources e.g., hospital data, histological reports, Lupus Society (local branch), physicians, immunology lab reports, etc.	M/F. 20 yrs and older. Dx of SLE (at least 4 of the ARA criteria). Excluded patients who died.	n=50	1986-1989	PHYS-dx (1982 ARA criteria)	26.1 per 100,000 (1989) 20.2 per 100,000 (Whites) 50.4 per 100,000 (Asians)
[133]	Samanta, Feehally, et al.	1991	United Kingdom (Leicester city)	Clinical sample	Cases of SLE dx identified via various sources e.g., general hospitals, histological reports, death certificate records (SLE or CTD as cause of death), doctors' lists, etc. Case notes were examined.	M/F. Patients satisfying SLE dx. Had presented between 1979 and 1988. All dx of SLE, CTD, or vasculitis were considered.	n=87	1979-1988	PHYS-dx (1982 ARA criteria)	0.4/1,000 (Asians) 0.2/1,000 (Whites)
[135]	Johnson, Gordon, et al.	1995	United Kingdom (Metropolitan Districts of Birmingham and Solihull)	Clinical sample	Total pop was 1,160,900 for these areas with 872,877 over 17 yrs. Study area consisted of 5 District Health Authorities. 6 sources used to identify SLE patients e.g., notification by attending physician, patient support groups, hospital inpatient files and lab records, etc.	M/F. 18 yrs and older on Jan 1, 1992. SLE-dx (based on at least 4 ACR criteria). Excluded those with evidence of drug-induced SLE.	n=242	1990-1993	PHYS-dx (1982 ACR criteria)	Point prevalence: 27.7/100,000

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size	Year of Data Collection	Method of Dx	Crude Prevalence
192	Molokhia, McKeigue, et al.	2001	United Kingdom (Boroughs of Lambeth, Southwark, and Lewisham, London)	Clinical sample (Qu're)	Extracted all patients with a dx of SLE from the records of 4 hospitals covering the area of Lambeth, Southwark, and Lewisham in south London. Those identified as having SLE were sent questionnaires.	M/F. 15 yrs and older. Alive at the end of 1999. At least show 4 sign and symptoms of: rash (malar and/or discoid) photo-sensitivity, oral ulcers, AR, serositis, disorders (renal, neurological, haematological, and/or immunological) and/or anti-nuclear antibody.	N=205 (187 female cases identified)	1999	PHYS-dx (1982 ARA criteria)	Black African group: 110 per 100,000 (women, 15-64 yrs) CAU pop: 35 per 100,000 women Black Caribbean/ Black other group: 177 per 100,000 women
144	Nossent	1992	Netherlands (Island of Curacao, autonomous part of the Dutch Kingdom)	Admin Data (ICD-9 code: 710.0)	Island of Curacao has a pop estimated to be 146,500. Dx of SLE from various sources e.g., discharge records; records of specialists in internal medicine and dermatology in 1989; and death certificates from 1989.	M/F. All ages. Fulfilling four or more ARA criteria for classification of SLE. Patients with SLE seen during the period 1980-1990	n=94	1980-1990	PHYS-dx (1982 ARA criteria)	Period prevalence on Jan 1, 1990: 47.6 per 100,000
146	Govoni, Castellino, et al.	2006	Italy (Ferrara district, Northeast Italy)	Admin Data (ICD-9 code 710.0)	All patients admitted to a hospital or referred to an outpatient clinic with a dx of SLE. The health care district of Ferrara has 346,000 inhabitants; 131,000 urban and 215,000 rural (2002 Census). Ferrara has a major teaching hospital and tertiary referral centre for rheumatic conditions (with section only for SLE).	M/F. 16 yrs and older. Native Italian origin. Resident in the Ferrara district at least 6 months prior to dx. Hospital discharge records and records in the National Health Care System with code for SLE. Referrals to the out-patient clinic with a dx of SLE (at least 4 ACR criteria). Excluded other CTD dx.	N=346,000; n=201 (20 males & 181 females) 299 SLE with 201 definite SLE (>=4 ACR criteria)	Jan 1, 1996 – Dec 31, 2002	PHYS-dx (1982 ACR criteria)	57.9 per 100,000
145	Nossent	2001	Norway (Finnmark and Troms)	Admin Data [ICD-9 code: 710.0 (SLE), 710.2 (SS), 710 (unclassified CTD) & 695.4 (discoid lupus)]	2 northern most counties of Norway (middle pop 222,403). Retrieval sources: hospital inpatient discharge & outpatient registries & mortality database for selected codes.	M/F. All ages. In the hospital registries with dx of selected codes from Jan 1978 to Jan 1996. Meeting 4 of the ACR criteria.	N=243; n=111 (met the ACR criteria) 89 SLE on 1 Jan 1996	1978-1996	PHYS-dx (1982 ACR criteria)	Point prevalence: 49.5 per 100,000
142	Nived, Sturfelt, et al.	1985	Sweden (Health care districts of Lund and Orup)	Admin Data	All patients with dx of SLE at the university hospital or in primary care clinics were extracted from computerized registers.	M/F. 14 yrs and older. All patients with a definite clinical dx of SLE during the yrs 1978-1996 and alive on 31 Dec 1982.	n=65	1973-1982	PHYS-dx (1971 & 1982 ARA criteria)	**Clinical diagnosis** (31 Dec 1982): 38.9 per 100,000 **1971 ARA**

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size	Year of Data Collection	Method of Dx	Crude Prevalence
					Where dx was incomplete, the outpatient's files were screened for possible cases. Total pop was 156,924 (Dec 1982).					**criteria:** 35.7 per 100,000 **1982 ARA criteria:** 36.3 per 100,000
[139]	Helve	1985	Finland	Admin Data	SLE patients from computer files of all general hospitals, tuberculosis hospitals and mental asylums registered with the National Board of Health. Total Finnish pop was 4,758,000.	M/F. SLE dx between Jan 1, 1972 and Dec 31, 1978.	N=1,427; n=142	1972-1978	PHYS-dx (preliminary ARA criteria)	28 per 100,000 (in 1978)
[138]	Voss, Green, et al.	1998	Denmark (County of Funen)	Admin Data + Population-based	Pop was 387,841 for persons 15 yrs and older (1995). Patients retrieved from 4 sources all based on social security numbers from the Central Population Registry (includes all citizens), covering all inpatients, outpatients, private specialists and GPs. Also, searched registers of autoimmune tests from the University Hospital.	M/F. 15 yrs and older during study period (1980-1994). Patients with dx of SLE, discoid lupus or unspecified CTD were ascertained from the two registers. Autoimmune tests were positive for anti-nuclear antibodies and anti-dsDNA.	N=880 147 SLE (1980-1994) 104 SLE (84 definite & 20 in-complete) as of Jan 1995	Jan 1, 1980 - Dec 31, 1994	PHYS-dx (1982 ACR criteria followed by Fries & Holmon: evidence of "multisystem disease, serologic positivity, and absence of a better dx")	Point prevalence: 21.7 per 100,000 (definite); 5.2 per 100, 000 (incomplete)
[137]	Dadoniene, Adoma-viciute, et al.	2006	Lithuania (Vilnius)	Admin Data + Population-based	SLE case identification: **1) Registry-based:** registered at 1 of 14 outpatient clinics **2) Population-based study:** had consultation or hospitalization at tertiary rheumatology centers in the city. Random selection of 10,000 Vilnius pop of 2,783,659.	M/F. 19 yrs or older. Resident of Vilnius fulfilling the ACR criteria for SLE.	N=158; n=115 (in registry & interview) n=75 (with SLE at end of 2004) N=10,000; n=4,017 (population-based study) n=2 SLE	1999-2004 (Registry) 1994 (Inter-view)	PHYS-dx (1982 ACR criteria)	**SLE registry:** 16.2 per 100,000 (based on the Vilnius adult pop in Jan 2004). Extrapolating to the entire adult Lithuanian pop: 450 per 100,000. **Population-based study:** 0.05%. Extrapolating to pop of 10,000 inhabitants in the sample: 0.02%.

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size	Year of Data Collection	Method of Dx	Crude Prevalence
[143]	Alamanos, Voulgari, et al.	2003	Greece (Ioannina, Northwest Greece)	Admin Data	Ioannina has a pop of about 488,435 (2001 census). Sources of retrieval: hospital rheumatology clinics and private rheumatology practices.	M/F. All ages. Residing in Ioannina on December 31, 2001. Having SLE dx.	N=488,435 n=178 SLE	1982 – 2001	PHYS-dx (1982 ACR criteria)	Point prevalence: 39.51 per 100,000 inhabitants
[141]	Lopez, Mozo, et al.	2003	Spain (Asturias, north of Spain)	Admin Data	Total pop of 1,073,971 (2002 Census). All patients referred to the central university hospital with clinical suspicion of SLE. Patients are referred from local hospitals (includes border areas) and from specialists in private sectors.	M/F. All ages. Registered in the Social Security System & receiving free access to primary and secondary medical care. All patients referred to the immunology lab with a confirmed SLE dx (>=4 ACR criteria).	N=367 (43 males & 324 females)	1992 – Dec 31 2002	PHYS & specialist-dx (1982 ACR criteria)	Point prevalence: 34.12 per 100,000
[140]	Gourley, Patterson, et al.	1997	Ireland	Clinical sample (Qu're)	Residents of Northern Ireland with a pop of 1,631,800 (1993 report of the Registrar General). Records/lists from various sources: Northern Ireland regional connective tissue clinic; consultant hospital, medical staff, clinical immunologist & nephrologists; Northern Ireland branch of Lupus UK; Northern Ireland Regional Immunology Lab. Patients identified via these sources were sent a qu're.	M/F. All ages. Residing in Northern Ireland and identified by any of selected sources. Dx of SLE must meet the diagnostic criteria.	N=467; n=422		Self-report & PHYS-dx (1982 revised criteria for SLE)	Point prevalence (adjusting for mis-dx and non-ascertainment) on Aug 1 1993: 25.4 per 100,000 (based on 415 cases). 6 of 422 were under 18 yrs. The adult pop was 1,166,500. Thus, point prevalence of the adult pop (with same adjustments): 35.1 per 100,000.

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size	Year of Data Collection	Method of Dx	Crude Prevalence
[149]	Bossing-ham	2003	Australia (Queensland)	Clinical sample (medical chart review)	Far North Queensland comprises the Cape York peninsula and the Torres Strait Islands with a pop of 283,000 of which 28,000 claim Australian Aboriginal or Torres Strait Islanders (indigenous) decent (1995 census). SLE identified via specialists, GPs, medical and nursing staff of the peripheral hospitals, and staff of the Aboriginal health services.	M/F. All ages. Receiving SLE care at private practices, public hospitals or outreach clinics in Queensland.	N=108 (15 males and 93 females)	Aug 1996-Jul 1998	PHYS-dx (1982 ARA criteria)	45.3 per 100,000 92.8 per 100,000 for the indigenous group alone
[193]	Hart, Grigor, et al.	1983	New Zealand (Auckland)	Clinical sample	Sources: medical records from 3 general hospitals with discharge dx of SLE or clinical results consistent with SLE; qu're circulated to all non-hospital based PHYS; government death records with SLE listed as the primary cause of death	M/F. Dx of SLE for the period Jan. 1, 1975 to Jan. 1, 1981. Patients referred for hospital treatment from outside the area were excluded.	N=151; n=136 (123 were female were identified)	Jan 1, 1975 - Jan 1, 1981	PHYS-dx (criteria suggested by Fries and Holman & ARA preliminary criteria)	45 per 100,000 for females 15-64 yrs
[194]	Molina, Mayor, et al.	2007	Puerto Rico	Admin Data (ICD-9 code: 710.0)	All insurance claims submitted by health care providers (physician, dentists, labs, pharmacies, and hospitals) in 2003 for SLE	M/F. All ages residing in Puerto Rico who had private health care insurance with Triple-S, Inc, in 2003. Dx of SLE in claim.	N=552,733; n=877 (65 males & 812 females)	2003	PHYS-dx	159 per 100,000 inhabitants or 1 per 630 inhabitants
[147]	Al-Arfaj, Al-Balla, et al.	2002	Saudi Arabia (Al- Qaseem)	Population-based (Qu're by nurse + Clinic Exam by RT)	Rural and urban centers with a pop of 662,000 (1992 census). The province divided into 3 strata based on pop size. Random samples or sampled with probability proportionate to size. A total of 1,000 households were selected.	M/F. 16 yrs and older.	N=10,372 ;n=2	Unknown	Self-report of PHYS-dx. Confirmed by RT (1982 ACR criteria)	Point prevalence: 19.28 per 100 000 inhabitants

Table 8D: Scleroderma/Systemic Sclerosis Prevalence [N=14*]

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size	Year of Data Collection	Method of dx	Crude Prevalence
[150]	Bernatsky, Joseph, et al.	2009	Canada (QC)	Admin Data (ICD-9 code: 710.1)	Quebec physician billing (RAMQ) and hospitalization databases (MEDECHO) covering 7.5 million people	M/F **Hospital Data:** Primary and nonprimary discharge dx of SSc **Physician data:** >=2 dx by any PHYS within >=2 mos apart but within a 2 yr span OR >=1 dx for visit to RT	N=approx 7.5 million	1989-2003	PHYS-dx	44.3 per 100,000 (accounting for errors inherent in both databases)
[151]	Thompson & Pope	2002	Canada (South western ON)	Cohort study (clinical sample)	Patients from Windsor, Sarnia and Woodstock referred to outpatient clinic in south western Ontario. Patients were identified in a rheumatology outpatient practice database. A group of 154 controls were randomly selected, derived from the same practice and referred to the same RT, matched for age and sex.	M/F. All ages. Currently living in one of the study regions. Alive at the time of the study. Patients with diffuse or limited SSc who met the ARA preliminary criteria for scleroderma or CREST syndrome were included. The controls did not have scleroderma or mixed CTD but had other rheumatologic dx.	N=91 (14 males & 77 females)	Unknown	PHYS-dx (ARA preliminary criteria)	**Woodstock:** 280 per million (2.8 per 10,000) **Windsor:** 70.8 per million (0.71 per 10,000) **Sarnia:** 90.2 per million (0.96 per 10,000) **London:** 74 per million (0.74 per 10,000)
[152]	Robinson, Eisenberg, et al. **(Abstract only)**	2008	USA	Admin Data (ICD-9 codes)	Two US datasets with patient-level medical administrative claims and drug commercial claims	*Cases:* Patients with SSc. *Controls:* Patients without SSc selected and matched 4:1 to SSc patients based on sex, age, Census Bureau region, and prior insurance coverage.	Unknown	2001-2002	PHYS-dx	0.05% using the standard population model 0.03% under sensitivity analysis
[153]	Maricq, Weinrich, et al.	1989	USA (South Carolina)	Population-based (California Health Survey)	Random sample of the general population of the state of South Carolina Phase 1 (screening qu're) Phase 2 (interview + physical exam) Phase 3 (clinical test).	M/F. 18 yrs and older. **Scleroderma spectrum disorders [SSD] (including SSc)**	Phase 1: n=6,998 Phase 2: n=531 Phase 3: n=226 7 SSD (2 SSc, females)	Unknown	Self-report. Confirmed (ARA criteria (1980))	**SSc** (1985)**:** 19 to 75 per 100,000 **SSD:** 67 to 265 per 100,000

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size	Year of Data Collection	Method of dx	Crude Prevalence
[154]	Allcock, Forrest, et al.	2004	United Kingdom (Newcastle, England)	Clinical sample (clinical history and clinical exam)	All residents in the defined geographical area with postal code prefix NE1-NE71. The pop of study area was 931,212 (1991 census). Estimated pop of study area on 1 Jan 2000 was 909,578. Sources: rheumatology department, RT consultants, renal PHYS, dermatologist practising in study region, & regional immunology labs.	M/F. All ages. Alive and residents within the defined postcode area on the 1 Jan 2000. SSc dx or having sclerodactyly and at least 2 of: Raynaud's phenomenon, oesophageal dysmotility, calcinosis, telangiectasia or an elevated antinuclear antibody titre. Excluded mixed CTD or other CTD, localized scleroderma, and morphea. Excluded postal code prefix NE31-NE38 & areas of referral overlap with other hospitals.	N=909,578; n=80	2000	PHYS-dx (ACR criteria)	8.80 cases per 100, 000 inhabitants Urban city of Newcastle: 8.9 per 100,000 inhabitants Surrounding areas: 8.7 per 100 000 inhabitants
[155]	Silman, Jannini, et al.	1988	United Kingdom (West Midlands)	Clinical sample	Region with a pop of 4.1 million adults. Sources: relevant consultants, rheumatology units, hospital admissions from the Regional Health Authority, Royal College of General Practitioners, Raynaud's Association, Scleroderma Society, & UK Scleroderma Study Group from other regions who saw residents of West Midland.	M/F. 15 yrs and older. Diagnosed with **scleroderma** and identified by any of the sources described.	n=159; n=151	1985-1986	PHYS-dx	Scleroderma (limited and diffuse cutaneous): 30.8 per million of the adult population
[160]	Le Guern, Mahr, et al.	2004	France (Paris - Seine-Saint Denis County)	Admin Data (ICD-9 and revised ICD-10 codes 710.0 or M34) + Chart Review	A north eastern suburb. A highly urbanized Parisian area with a pop of 1,382,928 with 1,094,412 adults. Sources: public hospitals & private clinics in study area, university hospital neighbouring study area, university hospital specializing in SSc, GPs and community specialists, SSc support groups, & French Public Health Insurance System.	M/F. 15 yrs and older. Resident of Seine-Saint Denis County for at least part of 2001. Fulfilling the ACR criteria or LeRoy & Medsger (L&M) classification for SSc.	N=119; n=104	2001	PHYS-dx (1980 ACR criteria and/or L&M criteria)	158.3 per 1,000,000 adults

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size	Year of Data Collection	Method of dx	Crude Prevalence
[161]	Airo, Tabaglio, et al. **(Abstract only)**	2007	Italy (Valtrompia, northern Italy)	Clinical sample	Patients recruited from 28 GPs whose practices covered 38,348 persons and from a public hospital database covering all patients evaluated in community clinics, day-hospitals, and inpatient units of the area	M/F. 14 yrs and older. Having a dx of SSc.	n=13 (2 males and 11 females)	Unknown	PHYS-dx. Confirmed dx by RT (ACR criteria and L&M 2001 criteria).	33.9 per 100,000
[158]	Geirsson, Steinsson, et al.	1994	Iceland	Clinical sample	The Icelandic pop was 255,708 on 1 Dec 1990. Computerised search from registers of all hospitals & health care clinics, death registration files, and personal communication with doctors in Iceland.	M/F. All ages. SSc dx from 1975-1990. Patients alive with the disease were called in for examination.	n=18 (2 males and 16 females)	Jan 1, 1975 - Dec 31, 1990	PHYS-dx (1980 ARA criteria)	7.1 per 100,000 (in 1990)
[159]	Alamanos, Tsifetaki, et al.	2005	Greece (Ioannina, north western Greece)	Admin Data	Total pop was 488,435 inhabitants (2001 census). It has 6 districts, 4 on the mainland & 2 on the islands. Sources: inpatients and outpatients referred to the hospital rheumatology clinics and patients referred to private rheumatologists in the study area.	M/F. 15 yrs and older. Residing in the study area on the 31 Dec 2002. SSc dx between 1981 & 2002. Patients who died during study period, immigrated outside study area, lost to follow-up, or with localized scleroderma such as morphea and linear scleroderma were excluded.	N=488,435 n=109 SSc among the study pop n=75 SSc (by Dec 31, 2002)	Jan 1, 1981 - Dec 31, 2002	PHYS-dx (ACR criteria (1980) & L&M criteria (1988))	No significant variation among the 6 districts Highest prevalence [District of Ioannina (with rheumatology clinics)]: 18.8 per 100,000 Lowest prevalence [District of Corfou (an island with 3 RT practices)]: 11.4 per 100,000 15.0 per 100,000 (rural) and 16.6 per 100,000 (urban)
[162]	Valter, Saretok, et al.	1997	Estonia (Tartumaa and Varumaa)	Population-based (Qu're)	General pop of Tartumaa and Varumaa. Residents Register's database used to generate a random sample. 22,400 individuals were sent a qu're to detect those with SSD & Raynaud phenomenon. A sub-sample had a clinic exam.	M/F. 18 yrs and older. **SSD (including SSc)**	N=22,400 Phase 1: n=14,467 (Qu're) Phase 2: n=2,154 (Exam). N=13 SSD	Unknown	Self-report. Confirmed by PHYS (ACR criteria (1980)).	SSD in the general pop: 228 per 100,000 adults The best estimate of SSc (based on ACR criteria) in the general pop: 35 per 100,000 adults

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size	Year of Data Collection	Method of dx	Crude Prevalence
156	Roberts-Thomson, Walker, et al.	2006	Australia	Admin Data + mailed qu're	Data extracted from a population-based register, South Australian Scleroderma Register (began in 1993). New patients are added annually and deceased patients are removed. Patients ascertained from multiple sources: hospital discharge indices, immunological labs, nail-fold capillary-oscopy clinics, referrals from RTs, vascular surgeons or dermatologists practicing in south Australia, & death records.	M/F. Dx of scleroderma. Patients included in registry if they have clinical evidence of sclerodactyly together with at least two other ARA criteria.	n=353 (by 2002)	1993-2000	PHYS-dx (ARA criteria (1980))	Mean prevalence: 21.1 per 100,000 (1993-2002)
157	Chandran	1995	Australia (Adelaide)	Admin Data + case note review	Outpatient and discharge indexes from 5 major teaching hospitals. Adelaide provides special referral centres for tertiary referral in South Australia. South Australia pop was 1.4 million (1993).	M/F. Patient of any of the 5 major teaching hospitals with dx of SSc. Those referred to a specialist center are excluded.	n=215 n=148 SSc	Feb 1987 - Nov 1993	PHYS-dx. (Confirmed via case note review).	Point prevalence (Nov 2006): 147 to 208 per million
163	Tamaki, Mori, et al.	1991	Japan (Tokyo)	Admin Data	Tokyo has a pop of 11,898,000 as of Jan 1 1988. Records of patients registered to receive free medical service for intractable diseases. Almost all patients with a definite dx of SSc are registered.	M/F. SSc dx and registered in the Japanese public health system to obtain free medical service.	n=636 629 SSc (meeting the ARA criteria)	1986-1987	PHYS-dx (ARA criteria (1980))	5.3 per 100,000 Typical cases: 3.8 per 100,000 (since SSc is broad, typical cases were distinguished from other cases; also, assume responders & nonresponders have same distribution of dx) Minimum point prevalence: 2.1 per 100,000 [removing overlapping conditions (e.g., mixed CTD)]

** Two are abstract only.*

Table 9D: Sjogren's Syndrome Prevalence [N=9*]

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size	Year of Data Collection	Method of Dx	Crude Prevalence
[164]	Bowman, Ibrahim, et al.	2004	United Kingdom (Birming-ham)	Population-based from general practice (qu're and clinical exam)	2 GP practices. *Practice 1*: 364 cases. *Practice 2*: 1,930 cases. All female Caucasian patients under the General Practice Registers, covering 95% of the pop in the UK.	Female, Caucasians only. 35-74 yrs.	N=846; n=548	Unknown	Self-report and clinical dx based on the EU-USA criteria (2002)	Total responders: 0.4% Total sample: 0.2%
[195]	Thomas, Hay, et al.	1998	United Kingdom (Manchester)	Population-based from general practice (qu're and clinical exam)	Individuals randomly selected from a population register from a local general practice	M/F. 18-75 yrs registered in the local general practice.	N=1,000; n=616 (survey); n=341 (survey + exam)	Unknown	Nurse-dx	35 per 1,000 Autoimmune SS: 16 per 1,000 Non-autoimmune SS: 19 per 1,000
[196]	Haugen, Peen, et al.	2008	Norway (Hordaland County)	Community-based (qu're and clinical exam)	Community-based screening of individuals in two age groups 40-44 yrs & 71-74 yrs, who were part of a larger population study (HUSK). The study pop was 29,400.	M/F. Born between 1953-57 (41-44 yrs) and 1925-27 (71-74yrs) who had participated in the HUSK Study.	N=21,938; n=2,749 (born 1953-57) n=884 (born 1925-27)	Unknown	Self-report and clinical dx based on the 1993 ECC & 1996 rECC	**Born 1925-27**: 3.39% (ECC) & 1.40% (rECC) **Born 1953-57:** 0.44% (ECC) & 0.22% (rECC)
[197]	Dafni, Tzioufas, et al.	1997	Greece (Aitoloakar-nania)	Community-based (qu're and clinical exam)	Astakos community is rural with minimal migration during past 30 yrs. A total pop of 2,500. Source for addresses was the town hall records. Local GPs helped coordinate qu're administration.	Female only. 18 yrs and older. Residing in the Astakos community in Jun 1992. Dx of RA, SLE, SSc or other autoimmune rheumatic disorders were excluded based on the ARA criteria.	N=837 (Qu're) N=45; n=35 (clinic exam)	Unknown	Self-report and clinical exam	Definite primary SS: 0.60% Probable primary SS: approx 2.99% Combined definite/probable primary SS: 3.59%
[165]	Tomsic, Logar, et al.	1999	Slovenia (capital city Ljubljana)	Population-based (clinical exam)	Names and addresses were randomly selected from the telephone directory	M/F. 20 yrs and older. Ocular and oral tests were considered positive using the Schirmer-I test.	N=889; n=332	Unknown	PHYS-dx (ECC).	Definite SS: 0.60%
[167]	Zhang, Shi, et al.	1995	China	Population-based + Clinical sample (qu're and clinical exam)	Residents of a Beijing suburban village (rural) and inpatients	M/F. 16 yrs and older.	n=2,066 rural subjects n=100 inpatients	Unknown	Self-report and clinical dx (Copen-hagen criteria & modified San Diego criteria)	0.77% according to the Copenhagen criteria 0.33% according to the San Diego criteria

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size	Year of Data Collection	Method of Dx	Crude Prevalence
169	Sanchez-Guerrero, Perez-Dosal, et al.	2005	Mexico	Clinical sample (qu're and clinical exam)	Ambulatory patients attending a tertiary care center where most patients are admitted or referred for specialized care due to complex rheumatic diseases. Patients selected using random numbers from the rheumatology clinic (RC) and internal medicine clinic (IMC).	M/F. 16 yrs and older. Must be a patient of either the rheumatology or internal medicine clinic. Subjects who took meds that may reduce salivary flow (antihistamines) within 48 hrs before the study were excluded.	N=336; n=300 40 SS 8 primary SS 32 secondary SS	Unknown	Self-Report and clinical dx (AECG criteria)	**SS** in the total pop: 13.3% (19.3% RC & 4.2% IMC) **Primary SS:** 2.7% (2.8% RC & 2.5% IMC) **Secondary SS:** 10.7% (16.6% RC & 1.7% IMC)
166	Kabasakal, Kitapcioglu, et al.	2006	Turkey (Bornova District, Izmir)	Population-based (qu're and clinical exam)	Multistage random stratified address sample according to quarters as blocks and households	Females, Caucasians only. 18 yrs and older. Subjects that moved from the city, unable to communicate, no contact after 3 visits, using anti-cholinergic meds, had Alzheimer's disease or hepatitis C, or died were excluded.	N=156,078; n=831	2001-2002	Self-report and clinical dx (1993 ECC and 2002 AECG criteria)	1.56% according to the ECC criteria 0.72% according to the AECG
168	Birlik, Akar **(Abstract only)**	2009	Turkey (Izmir)	Population-based (Interview and clinical exam)	General Turkish population in two districts of Izmir	M/F. 20 yrs and older.	N=2,887; n=2,835	Unknown	Self-report and clinical dx (ECC and AECG criteria)	0.21% according to the AECG criteria 0.35% according to the ECC criteria

** One is an abstract*

Table 10D: Gout Prevalence [N=6]

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of Dx	Crude Prevalence
170	Mikuls, Farrar, et al.	2005	United Kingdom	Admin Data	Patients from a large population-based database, the General Practice Research Database (GPRD). In 1999, registered practices provided primary health care for over 1.8 million (approx 8% of the pop).	M/F. All ages. Residing in the UK and registered in the GPRD. The GPRD was searched for a diagnostic code for gout.	N=1.8 million; n=23,918	Jan 1990 - Dec 1999	PHYS-dx (OXMIS coding system)	1.39% during the calendar year 1999
171	Annemans, Spaepen, et al.	2008	United Kingdom and Germany (DE)	Admin Data (ICD-10 code & M10)	Sample obtained from a longitudinal database containing anonymous patient records. Patient records maintained by 650 general practices treating 2.5 million patients in the UK and 400 GPs or internists treating 2.4 million in DE.	M/F. 18 yrs and older. Diagnostic index code of gout or "gout" written in notes. Dx made between Jan 2000 & Jun 2005. Have at least one additional record of gout in history. Must have at least 24 months of recorded data before and 18 months after index date (1st consult between above dates). Excluded cancer patients.	**UK:** N= 2,514, 806; n=34,071 with gout; n=7,443 for further analysis **DE:** N= 2,402,185; n=34,797 with gout; n=4,006 for further analysis	Jan 2000 - Jun 2005	PHYS-dx	1.4% in UK and DE
198	Gardner, Power, et al.	1982	United Kingdom (England & Wales)	Population-based from general practice (postal qu're)	83 county boroughs in England and Wales were classified into 3 groups according to social and economic conditions. Ipswich - a 'better' town, Wakefield - an 'intermediate' town, and Preston - a 'worse' town.	Men only. 45-74 yrs. On the Family Practitioner Committee lists of the selected doctors.	N=15,578 (Ipswich= 5,339, Wakefield =5,317, & Preston= 4,922); n=10,440	Unknown	Self-report	Period prevalence in men: 3.9% (Ipswich) 4.5% (Wakefield) 4.8% (Preston)

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size (target pop & sample)	Year of Data Collection	Method of Dx	Crude Prevalence
[172]	Klemp, Stansfield, et al.	1997	New Zealand (Rotorua situated south east of Auckland & Ruatahuna)	Population-based (Survey)	Rotorua, a city of 65,000 people mainly of Maori and European origin. A random selection from schools, from the Rotorua District Council electoral roll of 1992 and the Eastern Maori District habitation index of Jun 1990. Ruatahuna, an isolated village inhabited by mainly Maori of the Tuhoe tribe. Two senior members of the tribes were elected to recruit as many members as possible.	M/F members of the Maori of the Arawa (Rotorua) and Tuhoe (Ruatahuna) tribes. 15 yrs and older. Meeting 6 of 11 ARA criteria for gout based on a survey setting.	N=657	Unknown	Self-report. Dx confirmed by PHYS (1977 ARA criteria).	4.7%
[173]	Chou & Lai	1998	Taiwan (Ho-Ping County in central Taiwan)	Population-based (Interview)	Total pop was 10,149 (in 1982) with 32% being Aborigines. The rest of the local pop was Taiwanese, Hakka, and Chinese (main-land China). Aborigines are mixed with other races so random sampling would not be appropriate. Sample was recruited from church goers (most Aborigines are Christian & attend church).	M/F Aborigines from four different aboriginal villages. 18 yrs and older. Christians and attending church on weekends.	N=342 N=40 with gout	July - Dec 1994	Self-report of PHYS-dx. Dx confirmed by clinical tests.	11.7%
[174]	Darmawan, Valken-burg, et al.	1992	Indonesia (Java)	Population-based (House-to-house qu're and clinical exam)	Two villages similar to the rural populace of Java in demographic character-istics. Population was all Javanese with 2,499 women and 2,184 men.	M/F. 15 yrs and older.	N=4,683	Unknown	Self-report. Confirmed by PHYS (1966 New York criteria & ARA criteria (1977)).	8 per 1,000

Table 11D: Adult Still's Disease Prevalence [N=2]

Ref #	Author	Year	Country/ Region	Study Type	Sampling Frame	Sample Demographics	Size	Year of Data Collection	Method of Dx	Crude Prevalence
[175]	Evensen & Nossent	2006	Norway (northern region)	Admin Data (ICD-10 code: M06.1)	Retrospective cohort study of all patients registered at the University Hospital of Northern NOR in 1999-2000. The hospital has a primary catchment area of 175,000 adults in the two most northern counties and serves as a regional referral centre for 400,000 adults. Patient records were reviewed.	M/F. 15 yrs or older. Patients <15 yrs of age at dx, who did not reside in the primary catchment area, were given an alternative dx at a later date, who had a dx of juvenile AR were excluded.	N=42; n=13 adult onset still's disease (AOSD)	1990-2000	PHYS-dx (Yamaguchi criteria for AOSD)	3.4 per 100,000 (in 1990) 4.7 per 100,000 (in 1995) 6.8 per 100,000 (in 2000)
[176]	Wakai, Ohta, et al.	1997	Japan	Clinical sample (medical sources)	Stratified random sampling from registry of all hospitals. Patients treated at one of the departments of internal medicine in hospitals throughout Japan. Patients in other departments also selected to increase study efficiency.	M/F. 16 yrs and older. Had visited one of the departments and had been treated in the year 1993.	N=1,561; n=837 125 with AOSD	Unknown	Self-report (classification criteria were prepared by the Research Committee on Adult Still's Disease in Japan)	0.73 per 100,000 (males) 1.47 per 100,000 (females)

Table 12D: Spondyloarthropathies Prevalence [N=5]

Ref #	Author	Year	Country/Region	Study Type	Sampling Frame	Sample Demographics	Size	Year of Data Collection	Method of Dx	Crude Prevalence
110	Boyer, Templin, et al.	1994	USA (Alaska)	Admin data (and clinical exam)	Inupiat Eskimo & Yupik Eskimo residents. Rheumatic disease registries. Any problems and diagnoses that might provide clues to the presence of SpA were identified through a query program.	M/F. 20 yrs and older.	N=590; n=104	Unknown	PHYS-dx	**SpA:** 1.5% **USpA:** 1.3 per 100 **AS:** 0.4 per 100 **PsA:** <0.1 per 100
199	Saraux, Guillemin, et al.	2005	France (20 counties)	Population-based survey	Nationwide multi-stage sampling of adults residing in 20 counties. A random selection of numbers from the public telephone list & a random selection of adults in households using the next birthday method.	M/F. 18 yrs and older. Valid home phone number. Excluded phone numbers for enterprise, business, institutions for the elderly, and second homes. Excluded areas of high urban concentration with high migratory movements e.g., Paris.	N=15,219; n=9,935	Unknown	Self-Report. Confirmed dx by RT (ESSG criteria (1991))	29 cases of SpA (AS, PsA) were confirmed
111	De Angelis, Salaffi, et al.	2007	Italy (Marche region, in central Italy)	Population-based, cross-sectional from general practice (qu're and clinical exam)	Estimated pop was 1,470,581 (2001 census). Region consists of rural, urban, and suburban areas. 20,882 subjects were taken from registration lists of 16 general practices. Random selection from 5 age groups with equal representation in each subgroup.	M/F. 18 yrs and older. Resident of Marche region as of 2004. Excluded high urban areas of migration e.g., Ancona and Urbino. Excluded subjects who had rheumatic symptoms in the past not due to a rheumatic complaint.	N=4,000; n=2,155 n=23 SpA	2004	Self-Report and RT-dx (ESSG criteria (1991))	**Overall:** 1.06% **PsA:** 0.42% **AS:** 0.37%
200	Bruges-Armas, Lima, et al.	2002	Portugal (Terceira, an island of Azores Archipelago.)	Population-based (Interview + X-ray)	The island is divided into 2 municipalities, each with a single health center. In the health centre of Angra do Heroismo, 24,561 were registered in 1994. 4,509 were randomly selected and files were obtained from the health center. These subjects were also part of a previous osteoporosis study. The pop of the municipality of Angra do Heroismo was 35,270 at the time of this	M/F. 50 yrs and older. Participants in the osteoporosis study and residing on one half of the island of Terceira. Excluded those born on the mainland Portugal, other islands, or other countries.	N=936; n=490 (255 males and 235 females)	1994	Dx was confirmed by two clinical scientists (ESSG criteria for SpA (1991) and New York criteria for AS (1984))	1.6%

Ref #	Author	Year	Country/Region	Study Type	Sampling Frame	Sample Demographics	Size	Year of Data Collection	Method of Dx	Crude Prevalence
					osteoporosis study.					
[116]	Hukuda, Minami, et al.	2001	Japan	Clinical sample (record review by orthopaedist or RT & radiographic exam)	All SpA patients who attended institutions for medical care. JP was divided into 9 districts to each of which a local orthopaedist or RT was assigned as a survey supervisor. Each survey supervisor selected all the clinics and hospitals with potential to be attended by patients with SpA in the district. The selection criterion was the institution to which at least 1 licensed orthopaedic RT and/or RT was posted.	M/F. 15 yrs and older. Attended the selected institutes during a 5 yr period (1985-89) and after a 7 year period (1990-1996).	N=990	1985-1996	PHYS-dx (Rome criteria or New York criteria for AS. Ordinary clinical & roentgeno-graphic features for other SpA)	**SpA** estimates would have not exceeded 9.5 per 100,000 **AS**: 6.5 per 100,000 people

Appendix E: Grey Literature Data Abstraction Tables – Arthritis Prevalence in Canada

Source of data tables: Statistics Canada, Community Health Survey, 2008
CANSIM table no.: 105-0501
Website: http://www12.statcan.gc.ca/health-sante/82-228/2009/06/index.cfm?Lang=E [Accessed on 24-Feb-2010]

Self-reported physician-diagnosed prevalence for all of Canada as well as individual provinces are available from the 2008 Canadian Community Health Survey (CCHS). Total, sex-specific, and age-specific crude rates are presented by Local Health Integration Networks (LHINs) in Ontario, health regions/authorities in Alberta, and health service delivery areas in British Columbia.

Changes were introduced to the arthritis module in 2007. Since 2007, data for the CCHS were collected yearly instead of every two years. While a sample of approximately 130,000 respondents were interviewed during the reference periods of 2003 and 2005, it has changed to 65,000 respondents each year starting in 2007. In addition, in 2007, rheumatism has been removed from the definition of arthritis. The current definition used is as follows:

> ***"Population aged 12 and over who reported that they have been diagnosed by a health professional as having arthritis. Arthritis includes rheumatoid arthritis and osteoarthritis, but excludes fibromyalgia."***

Arthritis question in the 2008 survey was:

> ***"Now I'd like to ask about certain chronic health conditions which you may have. We are interested in 'long-term conditions' which are expected to last or have already lasted 6 months or more and that have been diagnosed by a health professional."***
>
> - ***"Do you have arthritis, excluding fibromyalgia?"***

Table 1E: Self-Reported Physician-Diagnosed Prevalence of Arthritis in Ontario, Alberta, British Columbia, and all of Canada by Sex (Canadian Community Health Survey, 2008)

	Ontario		Alberta		British Columbia		CANADA*	
	N	Rate (%) (95% CI)	N	Rate (%) (95% CI)	N	Rate (%) (95% CI)	N	Rate (%) (95% CI)
Male	718 887	**13.3** (12.3-14.4)	176 988	**11.9** (10.4-13.5)	222 627	**11.9** (10.7-13.2)	1 666 416	**12.0** (11.5-12.5)
Female	1 141 381	**20.4** (19.5-21.4)	236 849	**16.4** (14.9-18.0)	332 617	**17.4** (16.0-18.8)	2 642 944	**18.5** (18.0-19.1)
Total	1 860 269	**16.9** (16.2-17.7)	413 837	**14.2** (13.0-15.3)	555 245	**14.7** (13.7-15.6)	4 309 360	**15.3** (14.9-15.7)

*Includes all provinces and territories

Table 2E: Self-Reported Physician-Diagnosed Prevalence of Arthritis in Ontario, Alberta, British Columbia, and all of Canada by Age (Canadian Community Health Survey, 2008)

	Ontario		Alberta		British Columbia		CANADA*	
	N	Rate (%) (95% CI)	N	Rate (%) (95% CI)	N	Rate (%) (95% CI)	N	Rate (%) (95% CI)
12-19 yrs	7 619	**0.6** (0.2-0.9)	-	-	-	-	25 055	**0.7** (0.5-1.0)
20-34 yrs	100 348	**4.0** (3.0-4.9)	17 895	**2.2** (1.3-3.2)	22 728	**2.6** (1.5-3.7)	194 064	**2.9** (2.5-3.3)
35-44 yrs	160 885	**7.9** (6.7-9.2)	41 087	**7.9** (5.8-10.0)	55 502	**8.5** (6.1-11.0)	367 075	**7.6** (6.8-8.3)
45-64 yrs	837 617	**24.4** (22.6-26.2)	191 121	**21.7** (18.8-24.6)	242 383	**19.7** (17.6-21.9)	1 899 225	**21.0** (20.1-21.9)
65+ yrs	753 799	**46.3** (44.2-48.4)	159 034	**46.0** (42.4-49.7)	231 075	**38.9** (36.1-41.6)	1 823 942	**43.0** (41.8-44.3)
Total	1 860 269	**16.9** (16.2-17.7)	413 837	**14.2** (13.0-15.3)	555 245	**14.7** (13.7-15.6)	4 309 360	**15.3** (14.9-15.7)

*Includes all provinces and territories

Table 3E: Self-Reported Physician-Diagnosed Prevalence of Arthritis in the Local Health Integration Networks in Ontario by Sex and Age (Canadian Community Health Survey, 2008)

	SEX		AGE (YRS)				Total Rate (%) (95% CI)
	Male	Female	20-34	35-44	45-64	65+	
	Rate (%) (95% CI)	Rate (%) (95% CI)	Rate (%) (95% CI)	Rate (%) (95% CI)	Rate (%) (95% CI)	Rate (%) (95% CI)	
Erie St. Clair	**16.1** (12.6-19.6)	**27.1** (23.1-31.0)	-	**17.4** (9.9-24.9)	**29.3** (23.6-35.1)	**51.5** (44.6-58.3)	**21.6** (18.9-24.3)
South West	**16.2** (13.5-18.8)	**21.6** (18.9-24.3)	-	**7.5** (4.3-10.7)	**25.7** (21.6-29.9)	**49.4** (44.2-54.7)	**18.9** (17.0-20.8)
Waterloo Wellington	**7.8** (4.9-10.7)	**17.4** (14.3-20.5)	-	-	**19.1** (14.1-24.1)	**35.6** (29.6-41.6)	**12.7** (10.7-14.7)
Hamilton Niagara Haldimand Brant	**15.6** (13.1-18.0)	**23.5** (20.9-26.2)	**3.1** (1.4-4.8)	**10.0** (6.5-13.6)	**27.4** (23.2-31.5)	**49.2** (44.4-54.0)	**19.7** (17.9-21.4)
Central West	**8.2** (5.1-11.4)	**13.3** (9.3-17.4)	-	-	**14.1** (9.3-18.8)	**34.4** (23.4-45.4)	**10.9** (8.3-13.6)
Mississauga Halton	**11.8** (7.9-15.8)	**20.3** (15.8-24.7)	-	-	**25.1** (18.0-32.1)	**53.9** (44.2-63.5)	**15.9** (12.8-19.0)
Toronto Central	**7.6** (4.6-10.6)	**18.0** (12.8-23.1)	-	-	**24.3** (15.8-32.8)	**38.8** (29.7-47.8)	**12.9** (9.8-15.9)
Central	**15.1** (10.2-19.9)	**14.6** (11.8-17.4)	-	**8.8** (3.7-13.9)	**18.7** (11.9-25.5)	**41.8** (34.3-49.3)	**14.8** (12.0-17.6)
Central East	**13.4** (10.5-16.3)	**20.7** (16.6-24.7)	-	**8.7** (5.1-12.3)	**24.2** (18.3-30.1)	**50.4** (44.7-56.1)	**17.1** (14.7-19.5)
South East	**20.1** (16.4-23.8)	**30.2** (26.5-33.8)	-	**16.3** (8.7-23.9)	**33.2** (27.5-38.8)	**55.2** (49.6-60.8)	**25.2** (22.5-27.9)
Champlain	**13.0** (9.5-16.4)	**20.2** (17.3-23.0)	-	**6.6** (3.1-10.1)	**25.1** (19.2-31.0)	**46.0** (40.1-51.9)	**16.7** (14.4-18.9)
North Simcoe Muskoka	**11.4** (7.9-14.9)	**21.2** (17.3-25.1)	-	**9.0** (3.2-14.7)	**22.9** (16.8-28.9)	**41.9** (35.7-48.2)	**16.4** (13.6-19.2)
North East	**19.3** (16.3-22.2)	**30.1** (27.2-33.0)	**5.9** (2.7-9.0)	**13.7** (8.1-19.3)	**34.4** (30.0-38.9)	**51.4** (45.7-57.2)	**24.8** (22.5-27.1)
North West	**16.9** (13.1-20.6)	**24.7** (20.6-28.7)	**7.0** (2.7-11.4)	**15.4** (8.6-22.2)	**25.1** (19.4-30.9)	**48.0** (41.5-54.5)	**20.7** (18.0-23.5)

Table 4E: Self-Reported Physician-Diagnosed Prevalence of Arthritis in the Local Health Integration Networks in Ontario by Age Groups for Males and Females (Canadian Community Health Survey, 2008)

	Male				Female			
	20-34	35-44	45-64	65+	20-34	35-44	45-64	65+
	Rate (%) (95% CI)	Rate (%) (95% CI)	Rate (%) (95% CI)	Rate (%) (95% CI)	Rate (%) (95% CI)	Rate (%) (95% CI)	Rate (%) (95% CI)	Rate (%) (95% CI)
Erie St. Clair	-	-	**22.9** (15.1-30.7)	**44.2** (34.6-53.8)	-	**27.4** (14.4-40.5)	**36.0** (27.8-44.3)	**57.4** (48.8-66.0)
South West	-	**8.3** (2.9-13.6)	**22.1** (16.9-27.2)	**42.1** (35.0-49.2)	-	**6.6** (2.6-10.6)	**29.3** (22.5-36.2)	**55.5** (48.7-62.4)
Waterloo Wellington	-	-	**11.4** (5.6-17.1)	**27.8** (18.2-37.3)	-	-	**26.3** (18.2-34.5)	**41.8** (33.2-50.3)
Hamilton Niagara Haldimand Brant	-	-	**22.4** (16.4-28.4)	**39.2** (31.9-46.4)	-	**13.6** (8.1-19.1)	**32.1** (26.2-38.0)	**57.4** (50.2-64.6)
Central West	-	-	**10.8** (5.1-16.5)	**32.6** (13.3-51.8)	-	-	**17.4** (9.4-25.5)	**36.0** (24.0-47.9)
Mississauga Halton	-	-	**21.7** (12.3-31.2)	**47.3** (33.7-61.0)	-	-	**28.3** (18.6-38.1)	**57.8** (44.4-71.2)
Toronto Central	-	-	**18.6** (7.6-29.6)	**20.5** (8.6-32.4)	-	-	**28.5** (15.9-41.1)	**56.2** (45.1-67.3)
Central	-	-	**23.5** (11.6-35.4)	**35.1** (24.0-46.2)	-	-	**14.1** (8.7-19.5)	**48.1** (36.7-59.5)
Central East	-	-	**16.7** (10.6-22.8)	**46.8** (37.6-56.1)	-	**10.0** (5.2-14.8)	**32.7** (21.8-43.5)	**53.0** (44.8-61.1)
South East	-	-	**25.3** (17.3-33.4)	**46.8** (38.3-55.4)	-	**18.4** (8.6-28.3)	**40.8** (32.8-48.8)	**62.7** (55.6-69.7)
Champlain	-	-	**20.1** (11.1-29.1)	**35.1** (25.1-45.1)	-	**7.2** (2.6-11.8)	**29.9** (22.6-37.2)	**54.6** (46.9-62.3)
North Simcoe Muskoka	-	-	**15.0** (8.4-21.7)	**31.8** (20.7-42.8)	-	-	**31.0** (21.2-40.8)	**50.3** (40.5-60.0)
North East	-	**14.9** (6.1-23.7)	**25.3** (19.3-31.4)	**40.1** (31.3-48.9)	**6.6** (2.6-10.7)	**12.5** (6.4-18.5)	**43.4** (36.8-50.0)	**61.1** (53.8-68.4)
North West	-	**12.5** (5.2-19.9)	**19.1** (11.3-26.9)	**41.6** (30.9-52.3)	-	**18.1** (7.3-28.9)	**31.3** (22.8-39.9)	**53.4** (44.5-62.3)
Total	**3.1** (1.8-4.3)	**6.3** (4.6-8.0)	**19.9** (17.4-22.5)	**37.6** (34.4-40.8)	**4.8** (3.3-6.3)	**9.6** (7.7-11.4)	**28.7** (26.4-31.1)	**53.4** (50.6-56.1)

Table 5E: Self-Reported Physician-Diagnosed Prevalence of Arthritis in the Health Regions in Alberta by Sex and Age (Canadian Community Health Survey, 2008)

	SEX				AGE (YRS)						Total	
	Male		Female		35-44		45-64		65+			
	N	Rate (%) (95% CI)	N	Rate (%) (95% CI)	N	Rate (%) (95% CI)	N	Rate (%) (95% CI)	N	Rate (%) (95% CI)	N	Rate (%) (95% CI)
Chinook	9 523	**14.6** (9.8-19.4)	11 771	**18.3** (14.3-22.2)	-	-	9 677	**24.7** (16.6-32.7)	9 788	**51.4** (41.1-61.8)	21 294	**16.4** (13.4-19.4)
Palliser	5 486	**12.0** (8.1-16)	9 811	**21.7** (15.5-28.0)	-	-	7 418	**27.1** (18.1-36.0)	5 630	**42.1** (32.1-52.0)	15 297	**16.8** (13.1-20.6)
Calgary	54 703	**9.9** (7.3-12.5)	62 644	**11.6** (9.2-14.0)	10 642	**5.0** (2.2-7.8)	52 827	**16.1** (11.0-21.1)	46 931	**39.9** (32.8-46.9)	117 346	**10.7** (8.9-12.6)
David Thompson	18 084	**13.5** (9.9-17.1)	24 231	**18.8** (15.0-22.6)	-	-	22 831	**28.6** (20.8-36.4)	14 847	**45.5** (36.1-54.9)	42 315	**16.1** (13.4-18.8)
East Central	6 992	**13.8** (8.7-18.9)	7 967	**16.4** (11.3-21.5)	-	-	4 976	**16.1** (8.8-23.4)	7 736	**48.5** (37.6-59.4)	14 959	**15.1** (11.5-18.7)
Capital	55 460	**12.0** (9.1-14.8)	88 138	**19.1** (15.9-22.3)	11 381	**7.1** (2.9-11.2)	69 166	**24.6** (18.8-30.5)	56 610	**49.3** (41.8-56.8)	143 598	**15.5** (13.3-17.7)
Aspen	14 076	**19.0** (12.7-25.3)	17 303	**24.9** (18.7-31.0)	-	-	12 279	**27.7** (16.9-38.5)	10 712	**57.1** (46.5-67.6)	31 378	**21.8** (17.2-26.5)
Peace Country	7 956	**12.7** (6.4-19.1)	10 460	**18.7** (12.6-24.7)	-	-	7 769	**23.8** (11.9-35.8)	4 822	**44.4** (29.6-59.3)	18 415	**15.5** (10.8-20.3)
Northern Lights	4 708	**14.6** (6.8-22.3)	4 525	**16.9** (10.0-23.8)	-	-	4 178	**25.0** (13.0-36.9)	-	-	9 234	**15.6** (10.1-21.1)

Table 6E: Self-Reported Physician-Diagnosed Prevalence of Arthritis in the Health Regions in Alberta by Age Group for Males and Females (Canadian Community Health Survey, 2008)

	Male						Female					
	35-44		45-64		65+		35-44		45-64		65+	
	N	Rate (%) 95% CI	N	Rate (%) 95% CI	N	Rate (%) 95% CI	N	Rate (%) 95% CI	N	Rate (%) 95% CI	N	Rate (%) 95% CI
Chinook	-	-	4337	**22.0** (9.9-34.1)	3607	**40.5** (26.2-54.8)	-	-	5340	**27.4** (16.6-38.1)	6181	**61.0** (45.9-76.1)
Palliser	-	-	2653	**19.5** (8.5-30.5)	2166	**35.9** (21.8-50.0)	-	-	4765	**34.5** (20.0-49.0)	3464	**47.1** (33.2-61.0)
Calgary	-	-	26 939	**16.2** (8.4-24.1)	18 181	**33.7** (23.3-44.2)	-	-	25 888	**15.9** (10.1-21.6)	28 750	**45.0** (34.9-55.2)
David Thompson	-	-	8910	**22.1** (12.2-32.0)	5692	**38.0** (26.0-50.0)	-	-	13 921	**35.2** (23.9-46.4)	9155	**51.9** (37.7-66.1)
East Central	-	-			3032	**39.0** (23.8-54.2)	-	-	2901	**19.3** (6.9-31.7)	4704	**57.5** (41.0-73.9)
Capital	-	-	29 539	**21.0** (13.5-28.6)	19 231	**37.1** (25.6-48.6)	-	-	39 627	**28.2** (19.3-37.2)	37 379	**59.3** (49.3-69.4)
Aspen	-	-	7497	**32.3** (15.7-49.0)	4442	**46.6** (29.8-63.4)	-	-	4781	**22.6** (10.4-34.7)	6271	**67.8** (53.3-82.3)
Peace Country	-	-	-	-	1901	**35.3** (14.5-56.1)	-	-	4303	**27.7** (12.9-42.5)	2921	**53.4** (33.6-73.2)
Northern Lights	-	-	-	-	-	-	-	-	2631	**35.6** (15.5-55.7)	-	-
Total	16 388	**6.2** (3.7-8.7)	86 964	**19.5** (15.4-23.6)	59 447	**37.2** (31.8-42.6)	24 699	**9.7** (6.3-13.0)	104 157	**23.9** (20.1-27.7)	99 587	**53.6** (48.3-59.0)

Table 7E: Self-Reported Physician-Diagnosed Prevalence of Arthritis in the Health Service Delivery Areas in British Columbia by Sex and Age (Canadian Community Health Survey, 2008)

	SEX				AGE (YRS)				Total	
	Male		Female		45-64		65+			
	N	Rate (%) (95% CI)	N	Rate (%) (95% CI)	N	Rate (%) (95% CI)	N	Rate (%) (95% CI)	N	Rate (%) (95% CI)
East Kootenay	5 503	**13.7** (6.8-20.6)	8 663	**25.6** (17.0-34.1)	7 528	**30.2** (18.7-41.7)	4 961	**41.8** (27.9-55.6)	14 166	**19.2** (13.1-25.2)
Kootenay-Boundary	3 520	**9.1** (3.8-14.4)	6 247	**17.6** (11.1-24.2)	5 082	**18.8** (10.7-26.9)	3 830	**28.8** (19.0-38.5)	9 767	**13.2** (8.6-17.7)
Okanagan	26 552	**18.1** (11.4-24.8)	38 750	**25.1** (17.7-32.5)	34 335	**33.9** (21.1-46.7)	25 055	**39.6** (29.1-50.0)	65 302	**21.7** (16.0-27.4)
Thompson/ Cariboo	13 167	**14.0** (8.7-19.4)	14 680	**15.7** (10.5-21.0)	10 827	**16.2** (8.9-23.4)	11 633	**34.9** (24.8-44.9)	27 847	**14.9** (10.7- 19.1)
Fraser East	15 314	**13.5** (8.3-18.7)	17 493	**15.2** (10.6-19.8)	15 912	**23.3** (14.0-32.6)	14 599	**40.9** (30.8-50.9)	32 807	**14.3** (10.9-17.8)
Fraser North	22 397	**9.0** (5.3-12.8)	41 743	**16.3** (11.6-20.9)	26 784	**23.3** (10.6-23.5)	23 692	**40.9** (26.7-44.4)	64 141	**12.7** (9.9-15.5)
Fraser South	28 189	**9.8** (5.3-14.3)	42 825	**14.5** (11.3-17.8)	24 707	**13.3** (8.3-18.2)	29 126	**36.9** (29.2-44.7)	71 014	**12.2** (9.6-14.8)
Richmond	5 134	**6.6** (3.0-10.2)	12 465	**14.4** (9.2-19.5)	7 047	**12.7** (6.1-19.4)	9 335	**35.7** (21.1-50.2)	17 598	**10.7** (7.5-14.0)
Vancouver	25 676	**9.3** (6.2-12.5)	38 611	**13.9** (10.6-17.2)	26 792	**17.5** (11.2-23.8)	31 117	**40.5** (31.5-49.4)	64 287	**11.6** (9.3-14.0)
North Shore/Coast Garibaldi	15 151	**13.3** (8.2-18.5)	20 310	**17.0** (12.0-22)	16 918	**20.3** (13.6-27.1)	13 555	**34.9** (24.8-45.0)	35 461	**15.2** (11.9-18.5)
South Vancouver Island	20 949	**13.8** (9.3-18.3)	27 608	**16.6** (12.3-20.9)	21 654	**20.1** (13.4-26.8)	20 692	**36.1** (27.9-44.4)	48 557	**15.3** (12.2-18.3)
Central Vancouver Island	15 304	**13.5** (9.3-17.8)	30 632	**26.3** (20.2-32.5)	15 909	**19.8** (13.0-26.7)	22 286	**46.7** (37.6-55.8)	45 937	**20.0** (16.2-23.8)
North Vancouver Island	10 562	**22.0** (14.5-29.5)	11 292	**22.1** (14.1-30.1)	11 589	**29.9** (19.0-40.8)	8 704	**48.3** (34.8-61.8)	21 854	**22.1** (17.4-26.7)
Northwest	3 214	**11.4** (4.3-18.5)	4 477	**16.7** (10.5-22.9)	3 234	**16.5** (7.6-25.5)	2 474	**38.1** (22.2-53.9)	7 691	**14.0** (9.7-18.3)

Northern Interior	8 777	**14.5** (9.7-19.3)	10 130	**17.1** (10.8-23.4)	8 820	**21.4** (11.5-31.4)	7 780	**52.5** (39.2-65.9)	18 907	**15.8** (11.8-19.7)
Northeast	3 215	**11.0** (5.5-16.4)	6 691	**24.7** (12.9-36.5)	5 245	**30.9** (16.2-45.5)	2 239	**43.1** (27.1-59.2)	9 907	**17.6** (11.9-23.2)

Table 8E: Self-Reported Physician-Diagnosed Prevalence of Arthritis in the Health Service Delivery Areas in British Columbia by Age Groups for Males and Females (Canadian Community Health Survey, 2008)

	Male				Female			
	45-64		65+		45-64		65+	
	N	Rate (95% CI)	N	Rate (95% CI)	N	Rate (95% CI)	N	Rate (95% CI)
East Kootenay	-	-	2055	**35.3** (17.5-53.2)	4961	**40.2** (20.6-59.8)	2907	**47.9** (27.2-68.6)
Kootenay-Boundary	-	-	-	-	2845	**21.3** (10.8-31.8)	2635	**37.6** (23.4-51.8)
Okanagan	15 542	**31.8** (14.9-48.7)	8111	**27.5** (14.6-40.4)	18 793	**35.8** (18.9-52.8)	16 944	**50.1** (36.5-63.7)
Thompson/ Cariboo	5732	**16.8** (6.8-26.7)	4618	**28.0** (12.9-43.2)	5095	**15.6** (6.4-24.7)	7015	**41.6** (28.0-55.2)
Fraser East	7386	**21.8** (9.0-34.6)	6280	**38.4** (21.1-55.8)	8526	**24.7** (12.6-36.8)	8319	**42.9** (27.6-58.2)
Fraser North	7810	**10.3** (3.9-16.6)	6624	**21.8** (11.4-32.2)	18 974	**23.4** (12.6-34.1)	17 068	**47.1** (32.6-61.5)
Fraser South	-	-	5829	**16.2** (6.5-25.9)	15 180	**16.2** (9.8-22.7)	23 297	**54.3** (40.7-68.0)
Richmond	-	-	3294	**26.9** (9.9-43.9)	5686	**19.9** (7.9-32.0)	6040	**43.3** (23.6-63.0)
Vancouver	10 740	**14.1** (6.2-22.0)	11 475	**32.5** (18.5-46.6)	16 052	**20.9** (12.2-29.6)	19 641	**47.2** (35.4-59.0)
North Shore/Coast Garibaldi	7659	**18.7** (7.6-29.8)	4982	**28.2** (13.7-42.7)	9259	**21.9** (13.3-30.4)	8573	**40.5** (25.7-55.3)
South Vancouver Island	11 276	**22.1** (11.8-32.4)	7487	**29.3** (15.9-42.7)	10 379	**18.3** (8.6-27.9)	13 204	**41.6** (30.6-52.7)
Central Vancouver Island	3550	**9.1** (4.0-14.3)	8973	**38.9** (26.7-51.2)	12 359	**29.8** (16.8-42.8)	13 313	**53.9** (41.3-66.5)
North Vancouver Island	5246	**27.1** (9.7-44.6)	5316	**59.9** (40.6-79.2)	6343	**32.7** (18.8-46.5)	3387	**37.1** (13.9-60.2)
Northwest	-	-	974	**28.7** (11.8-45.6)	-	-	1499	**48.3** (20.5-76.1)
Northern Interior	4832	**22.5** (11.6-33.5)	3415	**45.6** (27.7-63.5)	-	-	4365	**59.7** (42.5-76.8)

Northeast	1985	**22.5** (8.2-36.7)	-	-	-	-	1692	**65.5** (44.2-86.8)
Total	99 087	**16.4** (13.6-19.2)	81 175	**29.3** (25.5-33.1)	143 296	**23.0** (19.9-26.1)	149 900	**47.2** (43.0-51.4)

Appendix F: Grey Literature Data Abstraction Tables – Arthritis Prevalence in the USA and International

Table 1F: Crude Prevalence of Arthritis in Population-Based Surveys for English-Speaking Countries Around the World

Legend
AR = Arthritis
OA = Osteoarthritis
RA = Rheumatoid arthritis
GT = Gout
RM = Rheumatism
LSI = Long standing illness
CC = Chronic conditions
SR = Self-report
DD = Doctor-diagnosed

Country	Survey	Source	Sampling Frame	ARTHRITIS (AR) DEFINITION									Year	PREVALENCE OF AR (%) (UNLESS OTHERWISE INDICATED)		
				AR	OA	RA	GT	RM	Other	LSI / CC	SR, DD	SR only		Male	Female	Total
USA	National Health Interview Survey (NHIS) [12-14]	Centers for Disease Control and Prevention	Households in the 50 States and the District of Columbia (DC). Data are collected on approx 75,000 to 100,000 adults aged 18 yrs and older.	have some form of AR, RA, GT, or FM							X		2003 to 2005	17.6	25.4	21.6
	Behavioural Risk Factor Surveillance System (BRFSS) [13,21,22]	Centers for Disease Control and Prevention	Households in the 50 States, DC, and three territories. More than 350,000 adults aged 18 yrs and older are interviewed.	have some form of AR, RA, GT, or FM							X		2007	23.4	31.2	27.5
UK	General Lifestyle Survey (GLS) [201]	Office of National Statistics	Households in Great Britain (England, Wales, Scotland). Adults aged 16 yrs and older are interviewed. Students who are living in halls of residence are included as residents of the household sampled even if they are not in situ.							X what is the matter		X	2008	4.6 *	8.2 *	--

Country	Survey	Source	Sampling Frame	ARTHRITIS (AR) DEFINITION									Year	PREVALENCE OF AR (%) (UNLESS OTHERWISE INDICATED)		
				AR	OA	RA	GT	RM	Other	LSI / CC	SR, DD	SR only		Male	Female	Total
	Health Survey for England (HSE) [31]	National Centre for Social Research & Royal Free and University College Medical School	Households in England. In 2005, the core sample was augmented by an additional boosted sample of older adults aged 65 years and over. Data are presented for these older adults only.	have/had AR (including OA & RM) what type	X	X			X	X (AR, OA, RA are listed)	X		2005	32.0	47.0	--
	Welsh Health Survey (WHS) [29,30]	Welsh Assembly Government	Households in Wales. The target sample was 15,000 adults aged 16 years and older.	currently treated AR								X	2008	10.0	16.0	13.0
Australia	National Health Survey (NHS) [32,33]	Australian Bureau of Statistics	Households across Australia (includes urban and rural areas of all states and territories). Approx 20,800 people of all age groups are included. Very remote areas of Australia are excluded.	have/had GT, RM or AR what type	X	X			X specify	X (had lasted/ except to last for 6 months or more)	X	X	2007/ 2008	12.9 **RM:** 1.8 **OA:** 5.9 **RA:** 1.6	17.5 **RM:** 2.8 **OA:** 9.7 **RA:** 2.6	15.2 **RM:** 2.3 **OA:** 7.8 **RA:** 2.1
	South Australian Monitoring & Surveillance System (SAMSS) [34-37]	Population Research and Outcomes Studies Unit, Government of South Australia	Households in South Australia with a telephone number listed. 16,505 adults aged 16 yrs and older were interviewed between 2002 and 2005.	have AR what type	X	X			X specify		X		2003 to 2006	**OA:** 8.1 **RA:** 2.7	**OA:** 13.9 **RA:** 3.6	21.9 (for 18 yrs & older) **OA:** 11.1 **RA:** 3.2
	Health Omnibus Survey [37-40]	Population Research and Outcomes Studies Unit, Government of South Australia	Households in metropolitan and country towns in South Australia. User-pays survey whereby organizations pay for questions relevant to own information requirements. Adults aged 15 years and over are interviewed.	have AR what type	X	X			X specify		X		1993 to 2005	--	--	24.3 (for 18 yrs & older)
	Health Monitor [37,41,42]	Population Research and Outcomes Studies	Households listed in the Electronic White Pages for the specified	have AR what type	X	X			X specify		X		Oct 2005	--	--	23.4 (for 18

Country	Survey	Source	Sampling Frame	ARTHRITIS (AR) DEFINITION									Year	PREVALENCE OF AR (%) (UNLESS OTHERWISE INDICATED)		
				AR	OA	RA	GT	RM	Other	LSI / CC	SR, DD	SR only		Male	Female	Total
		Unit, Government of South Australia	geographic area. Surveys are conducted three times per year and achieve a minimum of 2,000 completed interviews. It is also a user-pays survey.													yrs & older)
New Zealand	New Zealand Health Survey (NZHS) [46-48]	National Research Bureau	Households throughout New Zealand in meshblocks with 9 or more occupied dwellings. Those located off the main islands were excluded. 12,488 adults 15 years and over were interviewed between Oct 2006 to Nov 2007.	have AR what type (if more than one) what affects you the most	X	X	X			X	X		2006/ 2007	13.0 **OA:** 6.5 **RA:** 2.7 **GT:** 2.4	16.3 **OA:** 10.1 **RA:** 4.3 **GT:** 0.3	14.8 **OA:** 8.4 **RA:** 3.5 **GT:** 1.3
Ireland	Quarterly National Household Survey (QNHS) [179,180]	Central Statistics Office Ireland	Households in Ireland. 21,523 persons aged 18 years were interviewed from Jun to Aug 2007	any past health condition	X in a list	X in a list					X		2007	**OA:** 2.0 **RA:** 3.0	**OA:** 4.0 **RA:** 4.0	3.0%
Belgium	Health Interview Survey (HIS) [64-66]	Institute of Hygiene and Epidemiology and National Institutes of Statistics	Households in Belgium. More than 10,000 respondents in 2008 were interviewed.	have/had disease/ condition had disease/ condition in past 12 months	X in a list	X in a list					X		2008	**OA:** 8.5 **RA:** 3.9	**OA:** 17.4 **RA:** 8.1	**OA:** 13.1 **RA:** 6.0
Nether-lands	Integrated System of Social Surveys (POLS), Health and Disorders Module [67]	Statistics Netherlands	Households in Netherlands. The sample is drawn from the Dutch municipal population registers. Approx 10,000 persons of all ages.	suffered from one or more of these diseases/ disorders in past 12 months arthrosis of hips or								X	2009	**arthrosis** 7.5 **Chronic AR (RM & RA)** 2.6	**arthrosis** 14.0 **Chronic AR (RM & RA)** 5.5	**arthrosis** 10.9 **Chronic AR (RM & RA)** 4.1

Country	Survey	Source	Sampling Frame	ARTHRITIS (AR) DEFINITION									Year	PREVALENCE OF AR (%) (UNLESS OTHERWISE INDICATED)		
				AR	OA	RA	GT	RM	Other	LSI / CC	SR, DD	SR only		Male	Female	Total
				knees chronic arthritis (chronic RM, RA)												

* No specific arthritis question is asked. However, data for chronic sickness is presented in broad categories, one of which includes musculoskeletal (MSK) system. Data files from the Office for National Statistics present rates of selected long standing conditions that further categorize MSK conditions into arthritis and rheumatism.

Table 2F: Prevalence of Self-Reported Doctor-Diagnosed Arthritis by Age in the USA

	18-24 yrs	25-34 yrs	35-44 yrs	45-54 yrs	55-64 yrs	65-74 yrs	75-84 yrs	85 + yrs
NHIS 2003-2005 (male / female)	2.4 / 4.5	4.6 / 7.1	10.4 / 14.7	20.1 / 26.4	31.8 / 42.9	39.7 / 51.8	46.5 / 58.0	44.3 / 59.3
BRFSS 2007 (both sexes)	5.4	9.5	16.7	29.5	45.7	57.0		

Table 3F: Prevalence of Self-Reported Doctor-Diagnosed Arthritis in Older Adults by Age in England, United Kingdom

	65-69 yrs	70-74 yrs	75-79 yrs	80-84 yrs	85+ yrs
HSE 2005 (male / female)	29 / 40	33 / 45	33 / 47	36 / 54	34 / 54

Table 4F: Prevalence of Self-Reported Treated Arthritis for Adults by Age in Wales, United Kingdom

	16-24 yrs	25-34 yrs	35-44 yrs	45-54 yrs	55-64 yrs	65-74 yrs	75+ yrs
WHS 2008 (Wales, United Kingdom)	--	1	4	10	22	31	36

Table 5F: Prevalence of Self-Reported and/or Doctor-Diagnosed Arthritis by Age in Australia and New Zealand

	15-24 yrs	25-34 yrs	35-44 yrs	45-54 yrs	55-64 yrs	65-74 yrs	75+ yrs
NHS 2007-2008 (Australia)	1.9	4.6	9.0	18.7	37.1	45.2	52.6
NZHS 2006/2007 (New Zealand)	1.1	3.1	6.1	15.7	26.6	39.5	46.8

Table 6F: Prevalence of Self-Reported and/or Doctor-Diagnosed OA from Population-Based Surveys

	15/18-20 yrs	25-34 yrs	35-44 yrs	45-54 yrs	55-64 yrs	65-74 yrs	75+ yrs
NHS 2007-2008 (Australia)	--	1.6	3.4	8.8	20.4	23.6	32.0
SAMSS 2003-2006 (Australia)	0.3	1.1	4.0	9.5	19.7	28.0	29.2
NZHS 2006/2007 (New Zealand)	0.0	1.0	1.8	8.2	15.2	25.8	32.6
QNHS 2007 (Ireland)	[0]*	[0]	1	3	6	9	13
HIS 2008 (Belgium)	0.5 / 0.7 ^	1.0 / 3.3	4.5 / 8.2	11.2 / 19.8	17.9 / 31.3	25.5 / 49.7	29.6 / 51.0
POLS 2009 (Netherlands)+	1.0	3.4		16.4		33.7	

* Figures in parentheses [ ] indicate percentages based on small numbers, and are, therefore, subject to wide margin of error.
^ Male prevalence / female prevalence
+ Survey question asks about ***arthrosis*** of hips or knees in the last 12 months

Table 7F: Prevalence of Self-Reported and/or Doctor-Diagnosed RA from Population-Based Surveys

	15/18-24 yrs	25-34 yrs	35-44 yrs	45-54 yrs	55-64 yrs	65-74 yrs	75+ yrs
NHS 2007-2008 (Australia)	0.3	0.6	1.6	2.5	5.5	6.3	5.3
SAMSS 2003-2006 (Australia)	0.5	0.6	1.8	3.8	5.0	6.5	6.2
NZHS 2006/2007 (New Zealand)	0.8	1.4	1.9	3.7	6.0	8.1	9.2
QNHS 2007 (Ireland)	[0]	0	2	3	6	7	14
HIS 2008 (Belgium)	0.3 / 0.1 ^	0.1 / 2.1	1.8 / 4.2	5.3 / 7.3	7.7 / 11.3	11.6 / 23.9	14.9 / 26.9
POLS 2009 (Netherlands)+	0.7	1.9		7.0		9.7	

* Figures in parentheses [ ] indicate percentages based on small numbers, and are, therefore, subject to wide margin of error.
^ Male prevalence / female prevalence
+ Survey question asks about ***chronic arthritis (RA and rheumatism)*** in the last 12 months

Table 8F: Prevalence of Self-Reported and/or Doctor-Diagnosed Gout from Population-Based Surveys

	15/18-24 yrs	25-34 yrs	35-44 yrs	45-54 yrs	55-64 yrs	65-74 yrs	75+ yrs
NZHS 2006/2007 (New Zealand)	0.0	0.1	1.3	1.7	2.9	2.2	2.7

Appendix G: Crude and Adjusted Prevalence of Osteoarthritis by Local Health Integration Networks

Table 1G: Crude and Age-/Sex-Adjusted Prevalence for Degenerative Joint Disease (Osteoarthritis) by Local Health Integration Networks in Ontario for 2006/2007

LHIN	Sex	Population	Cases	Crude rate	Age- & sex-adjusted rate	95% confidence interval
North West	All	184,354	16,363	8.9	8.4	8.3 - 8.5
North West	Female	93,087	9,877	10.6	10.1	9.9 - 10.3
North West	Male	91,267	6,486	7.1	6.6	6.5 - 6.8
North East	All	447,630	46,766	10.5	9.3	9.3 - 9.4
North East	Female	227,385	27,321	12.0	10.8	10.7 - 10.9
North East	Male	220,245	19,445	8.8	7.8	7.7 - 7.9
North Simcoe Muskoka	All	317,271	33,599	10.6	9.7	9.6 - 9.8
North Simcoe Muskoka	Female	162,528	19,955	12.3	11.3	11.2 - 11.5
North Simcoe Muskoka	Male	154,743	13,644	8.8	8.0	7.8 - 8.1
Champlain	All	911,598	88,613	9.7	9.4	9.3 - 9.4
Champlain	Female	474,847	54,700	11.5	11.2	11.1 - 11.3
Champlain	Male	436,751	33,913	7.8	7.4	7.3 - 7.5
South East	All	372,171	43,537	11.7	10.2	10.1 - 10.3
South East	Female	194,315	25,706	13.2	11.7	11.5 - 11.8
South East	Male	177,856	17,831	10.0	8.7	8.6 - 8.8
Central East	All	1,123,347	106,791	9.5	9.1	9.0 - 9.1
Central East	Female	583,651	65,696	11.3	10.9	10.8 - 10.9
Central East	Male	539,696	41,095	7.6	7.2	7.1 - 7.3
Central	All	1,212,555	106,056	8.8	8.8	8.7 - 8.8
Central	Female	634,684	66,387	10.5	10.7	10.6 - 10.8
Central	Male	577,871	39,669	6.9	6.7	6.7 - 6.8
Toronto Central	All	929,664	79,545	8.6	8.9	8.8 - 8.9
Toronto Central	Female	480,390	50,264	10.5	10.9	10.8 - 11.0
Toronto Central	Male	449,274	29,281	6.5	6.7	6.6 - 6.8
Mississauga Halton	All	795,347	71,585	9.0	9.4	9.3 - 9.4
Mississauga Halton	Female	412,354	44,159	10.7	11.4	11.3 - 11.5
Mississauga Halton	Male	382,993	27,426	7.2	7.3	7.2 - 7.4
Central West	All	564,622	48,998	8.7	9.6	9.5 - 9.7
Central West	Female	288,465	30,128	10.4	11.7	11.6 - 11.9
Central West	Male	276,157	18,870	6.8	7.3	7.2 - 7.5
Hamilton Niagara Haldimand Brant	All	1,035,041	114,757	11.1	10.0	10.0 - 10.1
Hamilton Niagara Haldimand Brant	Female	532,349	70,278	13.2	12.0	11.9 - 12.0
Hamilton Niagara Haldimand Brant	Male	502,692	44,479	8.9	8.1	8.0 - 8.1
Waterloo Wellington	All	520,647	38,816	7.5	7.6	7.5 - 7.7

LHIN	Sex	Population	Cases	Crude rate	Age- & sex-adjusted rate	95% confidence interval
Waterloo Wellington	Female	265,697	23,689	8.9	9.1	9.0 - 9.2
Waterloo Wellington	Male	254,950	15,127	5.9	6.0	5.9 - 6.1
South West	All	700,716	70,220	10.0	9.1	9.0 - 9.2
South West	Female	359,179	42,318	11.8	10.7	10.6 - 10.8
South West	Male	341,537	27,902	8.2	7.4	7.4 - 7.5
Erie St. Clair	All	488,834	58,898	12.1	11.3	11.2 - 11.4
Erie St. Clair	Female	249,072	35,329	14.2	13.3	13.2 - 13.4
Erie St. Clair	Male	239,762	23,569	9.8	9.3	9.1 - 9.4
ONTARIO	**All**		**924,544**		**9.3**	
	Female		**565,807**		**11.1**	
	Male		**358,737**		**7.4**	

- ***Definition:*** Discharge Abstract Database (DAD) and Ontario Health Insurance Plan (OHIP) were mapped to the Expanded Diagnosis Cluster: degenerative joint disease (MUS03) to calculate "treated" prevalence rates for fiscal year 2006/07.
- ***Population*****:** All population estimates are for individuals aged 20 years and older. The source of population counts used was the Registered Persons Database (RPDB) and these counts were used as the denominators to calculate rates.
- ***Cases***: Number of cases of the specified chronic condition (new and existing; identified using the Johns Hopkins ACG Case-Mix System) in a specified population for a given year.
- ***Crude rate***: It is expressed 'per 100' individuals.
- ***Age- & sex- adjusted rate***: It is expressed 'per 100' individuals; standardized against the 2001 census population for Ontario (from Statistics Canada).
- ***Lower and upper limit for 95% confidence interval***: Lower and upper bound, respectively, of the 95% confidence interval; calculated using the gamma distribution (Reference: Fay MP, Feuer EJ. Confidence intervals for directly standardized rates: a method based on the gamma distribution. Stat Med 1997; 16:791-801). Confidence limits refer to the age- and sex-adjusted rate if an adjusted rate is displayed; otherwise, the confidence limits refer to the corresponding crude rate.