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Running Head: Inflammatory Arthritis in First Nations

Title: **Inflammatory Arthritis Prevalence and Health Services Use in the First Nations and non-First Nations Populations of Alberta, Canada**

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ABSTRACT

Objective: To estimate prevalence of Rheumatoid Arthritis (RA), Ankylosing Spondylitis (AS), Psoriatic Disease (PsD) and Crystal-Related Arthritis and healthcare use for inflammatory arthritis in First Nations and non-First Nations patients in Alberta, Canada.

Methods: Population-based cohorts of adults with RA, AS, PsD and Crystal-Related Arthritis were defined, with First Nations determination by premium payer status, to estimate prevalence rates. Rates of outpatient primary care and specialist visits and hospitalizations (all-cause, inflammatory-arthritis specific) were estimated.

Results: RA affected three times as many First Nations compared to non-First Nations residents (standardized rate ratio (SRR) 3.2, 95%CI 2.9 to 3.4). AS and PsD were more prevalent in First Nations (AS 0.6 per 100 residents, SRR 2.7, 95%CI 2.3 to 3.2; PsD 0.3 per 100 residents, SRR 1.5, 95%CI 1.3 to 1.9), whereas crystal-related arthritis was less prevalent (SRR 0.7, 95%CI 0.6 to 0.7). First Nations were more likely to have primary care visits (SRR 1.7, 95%CI 1.6 to 1.8) and less likely to have specialist visits (SRR 0.6, 95%CI 0.6 to 0.7) for RA relative to non-First Nations individuals. In PsD and crystal-related arthritis, First Nations people had higher rates of cause-specific hospitalizations.

Conclusion: The estimated prevalence of RA, AS, and PsD was higher in the First Nations population while crystal-related arthritis was less prevalent compared to the non-First Nations population. First Nations people were more likely to see primary care physicians were and less likely to see specialists for inflammatory arthritis care.

Key Indexing (MeSH) Terms: Rheumatoid Arthritis, Ankylosing Spondylitis, Psoriatic Arthritis, Psoriasis, Gout, Pseudogout, Epidemiology, Health Services Research, American Native Continental Ancestry Group

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SIGNIFICANCE AND INNOVATION

- The First Nations population of Alberta has increased prevalence of inflammatory arthritis conditions including rheumatoid arthritis (three times), ankylosing spondylitis (nearly three times) and psoriatic disease (one and a half times), compared to the general population, but a reduced prevalence of crystal-related arthritis (30% less).
- First Nations were nearly twice as likely to have primary care visits and 40% less likely to have specialist visits for RA relative to non-First Nations individuals.
- In psoriatic disease and crystal-related arthritis, First Nations people had higher rates of cause-specific hospitalizations.

INTRODUCTION

Arthritis is the most prevalent chronic condition in Canada with substantial health burden and economic implications(1). First Nations populations in Canada may have excessive prevalence rates and higher disease severity of inflammatory arthritis conditions, as observed in a population-based study of rheumatoid arthritis (RA) in Manitoba, Canada(2) and a tertiary care centre study(3). Still, these findings are limited in the scope of inflammatory arthritis conditions.

A significant gap in the literature for both First Nations and non-First Nations populations in Canada relates to health care use for inflammatory arthritis, such as primary care physician visits, specialist visits, and hospitalizations(3, 4). For patients with inflammatory arthritis, optimal care requires access to specialist care from rheumatologists, orthopaedic surgeons and rehabilitation practitioners as well as access to medications and surgical procedures(5). Prevalence and health services use are two critical pieces of information required in order to effectively plan health service delivery to specific populations.

Using population-based data which permit determination of First Nations status, the primary objective of this analysis was to provide a single source for prevalence estimates of the inflammatory arthritis conditions (RA, ankylosing spondylitis (AS), Psoriatic Disease (PsD, including both psoriasis and psoriatic arthritis), and Crystal-related Arthritis (gout and pseudogout)) in the First Nations and non-First Nations populations of Alberta, Canada. The second objective was to compare use of health services of primary care, specialty care and hospital services for inflammatory arthritis in the First Nations population to the general population. Identifying disparities in disease prevalence and healthcare use will provide a basis to target healthcare planning for specific populations who are in need of services to manage these chronic conditions.

METHODS

Setting and Study Design: A cohort study was conducted using 4 comprehensive provincial health databases beginning in fiscal year 1993/1994 and including up to fiscal year 2010/2011**:** hospitalizations (the Inpatient Discharge Abstract Database), outpatient physician visits (Ambulatory Care, Practitioner Payments databases), and demographic information (Population Registry). All administrative databases are maintained by Alberta Health for the Alberta Health Care Insurance Plan (AHCIP) including approximately 3.7 million residents. Databases were linked deterministically using the Alberta Provincial Health Number, the unique individual provincial identifier for healthcare, across all 4 databases. The number of individuals registered with AHCIP differs from national census data by only 0.1%(6).

Case Determination: Arthritis case ascertainment was based on physician billing claims coded according to the 9th International Classification of Diseases Clinical Modification (ICD-9-CM) system (minimum 1 code necessary, with up to 3 diagnoses fields allowed), or hospitalization data (16 discharge diagnoses fields with ICD-9-CM prior to April 2002, 25 discharge diagnoses fields with ICD-10-CA (International Classification of Diseases, 10th Revision, Canadian Adaptation), after April 2002). Case definitions for each type of inflammatory arthritis were applied based on the work by Lix et al in RA(7, 8) with $\geq$ 2 billing codes by any physician within 2 years; or one hospitalization discharge diagnosis, used to define the prevalent cohort. The codes used were as follows: RA (ICD-9-CM 714.x, ICD-10-CA M05.x-M06.x); AS (ICD-9-CM 720.x, ICD-10-CA M45.x); PsD (ICD-9-CM 696.0 and 696.1, ICD-10-CA M07.0-M07.3); Crystal-related Arthritis (ICD-9-CM 712.x and 274.x, ICD-10-CA M10.x and M11.x). Table 1 includes detailed information on our case definitions.

Population Determination: First Nations status was based on a variable within the administrative data which has been developed by Alberta Health for health services research and adopted by the Alberta research community(9-11). This uses the provincial health premium payment history to identify individuals whose premiums were paid by the First Nations and Inuit Health Branch (Health Canada) at any time point since 1994, thus indicating Treaty Status as per the Indian Act. All others were classified as non-First Nations. According to AHCIP 3.7% of the 2007 Alberta population is First Nations, consistent with Statistics Canada census data(12).

Main Outcomes and Statistical Analysis:

Prevalence: All surviving individuals meeting the case definition during the run-in period (starting in 1993/1994) and registered with AHCIP at the midpoint of the 2008/2009 fiscal year constituted the prevalent population (numerator). The 2008/2009 fiscal year was selected for our estimates to ensure all potential cases identified through physician billing codes would be within a 2 year window at the end of the study period (2010/2011). The denominator was all registered individuals with AHCIP at the mid-point of the 2008/2009 fiscal year. Prevalence rates were stratified by First Nations status. Rates were standardized by age and sex using the direct method with the entire Alberta population as the reference.

Health Care Use:

i) Primary Care and Specialist Physician Visits. The Practitioner Payments database of Alberta Health captures all provincially reimbursed or shadow-billed physician visits. Primary care as well as specialist (in this study, rheumatologist or internist) visits were available in this database. We identified all visits by individuals meeting the case definitions, with the diagnostic code for the respective inflammatory arthritis condition in the primary position, indicating the primary reason for the visit. For each of the fiscal years between 2005/2006 and 2008/2009, the mean

number of outpatient arthritis-related visits for the prevalent cohort specifically to either a primary care physician or a specialist physician was calculated, by First Nations status and by urban/rural status. Standardized rate ratios were calculated with adjustment for age and sex relative to the Alberta population with that type of inflammatory arthritis. The rates for these 4 fiscal years were averaged and expressed as a rate per 100 person-years with the inflammatory arthritis condition.

ii) Hospitalization. Each individual separation in the Inpatient – Discharge Abstract Database for cohort members over the fiscal years 1997/1998 to 2010/2011 was counted as a unique all-cause related hospitalization; those members with a primary diagnosis field code for their respective inflammatory arthritis condition had each individual hospitalization counted as an arthritis-specific hospitalization. Average annual rates were expressed as a rate per 100 person-years with inflammatory arthritis, and stratified by First Nations status and urban/rural status. Standardized rate ratios were calculated with adjustment for age and sex relative to the Alberta population specific for each type of inflammatory arthritis.

Covariates: Demographic data including age, sex, and the first three digits of the postal code (to define rural or urban residence(13)) were extracted from the Population Registry. Validated case definitions for diabetes(14), hypertension(15), and Charlson comorbidities(16) were applied to classify comorbidities. All analyses were completed with SAS 9.4 and Excel 2013 (Microsoft Office).

Ethics Approval: The University of Calgary Conjoint Research Health Ethics Board approved the study, following confirmation from the Alberta First Nations community that principles of *Ownership, Control, Access and Possession* were respected (Ethics ID E-23586).

RESULTS

Cohort Demographics: Table 2 summarizes the frequency of First Nations and non-First Nations individuals meeting the various inflammatory arthritis case conditions, by location of residence (urban or rural). In total, 38,931 individuals met the case definition for RA, 7,685 individuals that met the case definition for AS, 6,040 individuals met the case definition for PsD, and 44,845 individuals met the case definition for crystal-related arthritis. The majority of individuals meeting the case definition for RA had at least one comorbidity (68.5% First Nations vs 64.6% non-First Nations), with First Nations individuals more frequently having diabetes compared to non-First Nations people (RA 10.7% vs 6.6%; AS 9.5% vs 4.7%; PsD 12.3% vs 7.0%; Crystal-related arthritis 14.4% vs 10.5%). In RA, AS and crystal-related arthritis, hypertension was also more frequent in non-First Nations (RA 24.0% vs 13.4%; AS 15.5% vs 10.1%; Crystal-related arthritis 39.5% vs 28.2%),

Prevalence Rates and Standardized Rate Ratios (SRR): Overall and urban/rural prevalence rates which were standardized by age and sex for First Nations to the non-First Nations populations are reported, as are the SRR between populations (Table 3). The prevalence of RA was three-fold higher among First Nations residents (SRR 3.2, 95%CI 2.9 to 3.4) compared to non-First Nations residents. The prevalence of AS and PsD was also increased in First Nations people, with a SRR of 2.7 (95%CI 2.3 to 3.2) in AS and a SRR of 1.5 (95%CI 1.3 to 1.9) in PsD. The only type of inflammatory arthritis less prevalent in First Nations compared to non-First Nations populations was crystal-related arthritis (SRR 0.7, 95%CI 0.6 to 0.7), with a rate of 0.3 per 100 residents, compared to 1.2 per 100 non-First Nations residents. The SRRs in RA and AS for First Nations compared to non-First Nations populations were higher in rural versus urban areas; no conclusion could be made in this regard for the other types of inflammatory arthritis.

Health Care Use, Outpatient Visits: Rates of primary care and specialist visits are presented in Table 4. In subjects meeting the case definition for RA, assessment of RA represented 12.6% of all visits to primary care for First Nations (mean 1.9, SD 5.2 primary care visits per year for RA) and 14.1% for non-First Nations (mean 1.3, SD 4.8 primary care visits per year for RA). In contrast, in patients with AS and PsD, these diagnoses accounted for <3% of primary care visits for both First Nations and non-First Nations and for patients with crystal-related arthritis, this diagnosis accounted for 5% of primary care visits in First Nations and 6.5% in non-First Nations. Visits to specialists for inflammatory arthritis conditions were higher in the non-First Nations population. After age and sex standardization, in those meeting the case definition for RA, First Nations patients were significantly more likely to have primary care visits for RA (SRR 1.7, 95%CI 1.6 to 1.8) and less likely to have specialist visits for RA (SRR 0.6, 95%CI 0.6 to 0.7) relative to non-First Nations individuals (Figure 1), regardless of urban or rural residence. Similar trends for AS and PsD were also seen with primary care visits (AS SRR 1.3, 95%CI 1.1 to 1.6; PsD SRR 1.5, 95%CI 1.1 to 1.9) and specialist visits (AS SRR 0.3, 95%CI 0.3 to 0.4; PsD SRR 0.6, 95%CI 0.4 to 0.7) with no clear differences seen between urban and rural residents. This indicates that in contrast to non-First Nations patients, those from First Nations communities are predominantly receiving their RA, PsD and AS care from primary care physicians rather than specialists. This is different from crystal-related arthritis, where First Nations patients were less likely to have any type of physician visit compared to non-First Nations (primary care SRR 0.5, 95%CI 0.4 to 0.6; specialist SRR 0.4, 95%CI 0.2 to 0.6).

Health Care Use, Hospitalizations: First Nations patients with RA had twice the rate of all-cause hospitalizations compared to non-First Nations patients, and slightly less likely to have an RA-related hospitalization compared to non-First Nations patients (Table 5). The SRR for all-cause hospitalization rates was slightly higher in rural residents (rural SRR 2.1, 95%CI 1.9 to 2.4;

urban SRR 1.6, 95%CI 1.5 to 1.8), but not significantly different for arthritis-specific hospitalizations (SRR 0.9 95%CI 0.7 to 1.1 rural; SRR 0.8, 95%CI 0.7 to 0.9 urban). First Nations people with AS were also twice more likely than non-First Nations people to have an all-cause hospitalization (SRR 2.1, 95%CI 1.7 to 2.5), although with no significant differences seen between rural and urban residents. AS-specific hospitalizations were numerically more common in First Nations people, prominently in urban residents, although with confidence intervals overlapping the null value. First Nations patients with PsD were three times as likely to have all-cause hospitalizations and PsD-specific hospitalization, with a significantly greater difference in rural residents. First Nations patients with crystal-related arthritis were also nearly twice as likely to have all-cause hospitalizations and crystal-related arthritis specific hospitalization.

For all types of inflammatory arthritis, diabetics had higher all-cause hospitalization rates compared to patients with any of the other Charlson comorbidities. Crude all-cause hospitalization rates for RA patients with diabetes were 73.3 (95%CI 70.0 to 76.9) and 46.2 (95%CI 45.2 to 47.2) per 100 person-years for First Nations and non-First Nations patients respectively, in comparison to 44.0 (95%CI 43.0 to 45.0) and 28.7 (95%CI 28.4 to 28.9) for RA patients with any other Charlson comorbidity. Estimates were similar in AS, PsD and crystal-related arthritis (data not shown). Hospitalization rates specifically for inflammatory arthritis were not clearly different in patients with diabetes or other comorbidities in either First Nations or non-First Nations cohorts, as the confidence intervals in many cases were overlapping. The only condition without overlapping confidence intervals was RA, with crude rates of condition-specific hospitalization in diabetics being 2.0 (95%CI 1.4 to 2.6) and 3.9 (95%CI 3.6 to 4.2) per 100 person-years for First Nations and non-First Nations patients respectively, in comparison to 2.0 (95%CI 1.8 to 2.2) and 3.5 (95%CI 3.4 to 3.6) for any other Charlson comorbidity.

DISCUSSION

We contribute important new knowledge on the inflammatory arthritis burden and care gaps in the First Nations compared to the non-First Nations population in Alberta, Canada. Previously we have evaluated prevalence rates in First Nations of Alberta for osteoarthritis(17), systemic lupus erythematosus and scleroderma(18) and inflammatory myositis(19). In this current study, we present prevalence estimates for RA and AS, which were higher in the First Nations than the non-First Nations population, and PsD, which was similar in First Nations and non-First Nations groups. Crystal-related arthritis (0.8%) was the only inflammatory arthritis condition with a lower prevalence in the First Nations population.

Prevalence estimates are one way of describing arthritis burden in a population; analysis of health services use reflects disease management needs arising from arthritis symptoms and complications. Prior to our study, a paucity of work on health services use for inflammatory arthritis conditions existed. Our earlier work based on Manitoba administrative data reported more claims to any provider for RA visits by First Nations (average 10/1000) compared to non-First Nations (5/1000) residents (2). Although not specific to RA, significantly fewer follow-up visits annually in rheumatology clinics for Aboriginal patients (First Nations, Métis and Inuit) were reported(2). Our current analysis separates use by type of provider; First Nations patients were more likely to see primary care physicians for management of their inflammatory arthritis compared to non-First Nations, and were 40-70% less likely to see a rheumatology or internal medicine specialist for care, regardless of urban/rural status. For those with crystal-related arthritis, both primary and specialist care visits are occurring at reduced frequency for First Nations people. The specific reasons for these patterns were not possible to ascertain within our data sources, although availability of arthritis specialist providers outside of tertiary care centers is limited in our province. Another explanation relates to the clinical experiences of First Nations

patients when in contact with a tertiary healthcare system(20). Trust in the provider formed by positive relationships and the ease of accessibility to care may dominate the decision of remaining in primary care settings. Some have suggested that specialists may need to reframe their practice patterns and behaviours to similarly build trusting relationships(20). Since receipt of specialty care is linked to clinical arthritis outcomes(21) and provision of evidence-based therapy(22), the low rates of specialty visits among First Nations raises cause for concern, and suggests more quality-of-care work should be done in this regard.

Another burden of inflammatory arthritis is expressed by hospitalization rates. Higher rates of all-cause hospitalizations were reported in First Nations individuals across all types of inflammatory arthritis studied, although arthritis-specific hospitalization rates varied across diseases. Patients with PsD and crystal-related arthritis conditions had significantly higher all-cause hospitalization rates for First Nations people, which was more pronounced for rural residents with PsD. A higher hospitalization rate may be reflective of a few situations, including the severity of disease requiring hospitalization, or arthritis comorbidity.

We have provided estimates of selected inflammatory arthritis reported in First Nation populations and provided insight into the burden of rheumatic conditions. These estimates are based on administrative data which have inherent limitations and should be interpreted with caution(17, 18). We relied on previously used case definitions(7), however there is still potential for error in case ascertainment. Our provincial administrative datasets did not contain pharmacotherapy information during the period of study, which would have improved our case definition specificity if available. First Nations may have an increased likelihood of case ascertainment based on the frequency of use of primary care services, especially given the worse severity of disease demonstrated in other studies which we are unable to assess with our data source, which may have biased our estimates. We did however adjust for covariates available in

our datasets (age, sex, location of residence, comorbidity) to improve our estimates. We are also conscious that our estimates for the non-First Nations population reflects the population composition in our province, and that we cannot generate Caucasian-specific rates nor those of individual racial or ethnic groups, including the Métis population(23). In turn, the estimates based on Alberta data have uncertain generalizability to other tribal ancestry groups across the rest of Canada. National leadership to link First Nations and Métis registries to provincial administrative data would provide the ability to perform surveillance for the most prevalent chronic conditions affecting Indigenous populations, and contribute to a broader understanding of the impact of inflammatory arthritis in both in-patient and ambulatory care settings.

CONCLUSION

The prevalence estimates of inflammatory arthritis and evaluation of resulting health service needs in First Nations and non-First Nations populations of Alberta provide a basis for re-assessing and enhancing existing arthritis care services.

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Table 1. Case Definitions for Inflammatory Arthritis Conditions

Inflammatory Arthritis Condition	Codes	Source
Rheumatoid Arthritis	ICD-9-CM 714.x	Physician claims, hospitalizations prior to April 2002
	ICD-10-CA M05.x-M06.x	Hospitalizations after April 2002
Ankylosing Spondylitis	ICD-9-CM 720.x	Physician claims, hospitalizations prior to April 2002
	ICD-10-CA M45.x	Hospitalizations after April 2002
Psoriatic Disease	ICD-9-CM 696.0 and 696.1	Physician claims, hospitalizations prior to April 2002
	ICD-10-CA M07.0-M07.3	Hospitalizations after April 2002
Crystal Related Arthritis	ICD-9-CM 712.x and 274.x	Physician claims, hospitalizations prior to April 2002
	ICD-10-CA M10.x and M11.x	Hospitalizations after April 2002

For all inflammatory arthritis conditions, the case definition was $\geq$ 2 billing codes by any physician within 2 years OR one hospitalization discharge diagnosis

Table 2. Frequency of Inflammatory Arthritis Conditions in First Nations and non-First Nations Albertans by Urban and Rural Status in Fiscal Year 2008/2009

	Total Cohort	Urban		Rural	
		First Nations	non-First Nations	First Nations	non-First Nations
Rheumatoid Arthritis	38,931	1,035 (38.7%)	29,136 (80.4%)	1637 (61.3%)	7,123 (19.6%)
Ankylosing Spondylitis	7,685	132 (26.2%)	5,585 (77.8%)	371 (73.8%)	1,597 (22.2%)
Psoriatic Disease	6,040	102 (48.1%)	4,861 (83.4%)	110 (51.9%)	967 (16.6%)
Crystal Arthritis	44,845	297 (47.6%)	34,712 (78.5%)	327 (52.4%)	9,509 (21.5%)

Table 3. Prevalence Rates* per 100 population (95% Confidence Intervals) and Standardized Rate Ratios for First Nations relative to non-First Nations Populations

	First Nations Population			Non-First Nations Population			Standardized Rate Ratio (First Nations: non-First Nations)		
	Overall	**Urban**	**Rural**	**Overall**	**Urban**	**Rural**	**Overall**	**Urban**	**Rural**
Rheumatoid Arthritis	3.2 (3.1 to 3.4)	2.5 (2.3 to 2.7)	3.9 (3.7 to 4.1)	1.0 (1.0 to 1.0)	1.0 (0.9 to 1.0)	1.2 (1.1 to 1.2)	3.2 (2.9 to 3.4)	2.6 (2.3 to 2.9)	3.2 (2.9 to 3.5)
Ankylosing Spondylitis	0.6 (0.5 to 0.6)	0.3 (0.2 to 0.3)	0.8 (0.7 to 0.9)	0.2 (0.2 to 0.2)	0.2 (0.1 to 0.2)	0.3 (0.2 to 0.3)	2.7 (2.3 to 3.2)	1.4 (1.0 to 1.8)	2.8 (2.4 to 3.4)
Psoriatic Disease	0.3 (0.2 to 0.3)	0.3 (0.2 to 0.3)	0.3 (0.2 to 0.3)	0.2 (0.1 to 0.2)	0.2 (0.1 to 0.2)	0.2 (0.1 to 0.2)	1.5 (1.3 to 1.9)	1.6 (1.2 to 2.3)	1.5 (1.1 to 1.9)
Crystal Arthritis	0.8 (0.8 to 0.9)	0.9 (0.7 to 1.0)	0.8 (0.7 to 0.9)	1.2 (1.2 to 1.2)	1.2 (1.1 to 1.2)	1.6 (1.5 to 1.6)	0.7 (0.6 to 0.7)	0.7 (0.7 to 0.8)	0.5 (0.5 to 0.6)

* First Nations Rates Standardized to non-First Nations Population by Age and Sex; all estimates rounded to 1 decimal position

Table 4. Rates of Outpatient Visits per 100 person-years (95% Confidence Intervals) for Inflammatory Arthritis Conditions for First Nations relative to non-First Nations Populations

	Primary Care		Specialty Care	
	First Nations Population	**Non-First Nations Population**	**First Nations Population**	**Non-First Nations Population**
Rheumatoid Arthritis	167.9 (161.7 to 174.2)	100.0 (99.0 to 101.1)	31.7 (28.6 to 34.8)	49.8 (49.0 to 50.6)
Ankylosing Spondylitis	28.5 (24.3 to 32.8)	21.6 (20.5 to 22.7)	12.1 (6.9 to 17.2)	37.1 (35.2 to 39.1)
Psoriatic Disease	36.6 (28. 3 to 44.8)	24.9 (23.0 to 26.9)	14.9 (9.5 to 20.3)	26.8 (25.4 to 28.2)
Crystal Arthritis	25.6 (23.0 to 28.1)	51.1 (45.9 to 56.4)	1.2 (0.6 to 1.9)	3.4 (2.7 to 4.2)

Table 5. Age and Sex Standardized Rate Ratios (95%CI) for Hospitalizations, First Nations vs non-First Nations Populations

	Crude Rate		Standardized Rate Ratio (95% CI)		
	First Nations Population	non-First Nations Population	Overall	Urban	Rural
All-Cause Hospitalization					
Rheumatoid Arthritis	38.9 (38.2 to 39.7)	25.1 (24.9 to 25.3)	2.1 (1.9 to 2.2)	1.6 (1.5 to 1.8)	2.1 (1.9 to 2.4)
Ankylosing Spondylitis	37.5 (35.8 to 39.2)	20.2 (19.9 to 20.6)	2.1 (1.7 to 2.5)	1.9 (1.4 to 2.5)	1.6 (1.3 to 1.9)
Psoriatic Disease	36.8 (34.1 to 39.7)	17.9 (17.6 to 18.3)	3.0 (2.3 to 3.8)	1.4 (1.0 to 2.0)	3.2 (2.4 to 4.3)
Crystal Arthritis	34.1 (32.5 to 35.7)	23.9 (23.7 to 24.1)	1.7 (1.5 to 1.9)	1.4 (1.1 to 1.7)	1.5 (1.3 to 1.8)
Arthritis-Specific Hospitalization					
Rheumatoid Arthritis	2.3 (2.1 to 2.5)	3.4 (3.3 to 3.4)	0.8 (0.7 to 0.9)	0.8 (0.7 to 0.9)	0.9 (0.7 to 1.1)
Ankylosing Spondylitis	1.0 (0.7 to 1.3)	1.3 (1.2 to 1.4)	2.7 (0.7 to 9.7)	4.5 (0.9 to 21.8)	0.6 (0.4 to 0.8)
Psoriatic Disease	1.7 (1.2 to 2.4)	1.4 (1.3 to 1.5)	3.6 (1.1 to 11.9)	2.9 (0.3 to 31.1)	3.0 (1.4 to 6.6)
Crystal Arthritis	1.6 (1.2 to 1.9)	1.6 (1.6 to 1.7)	2.1 (1.0 to 4.0)	2.0 (1.1 to 3.7)	1.4 (0.7 to 2.9)

*** age and sex standardized to general Alberta population with that type of inflammatory arthritis**

Figure Legends:

Figure 1. Age and Sex Standardized Rate Ratios (95%CI) for Outpatient Visits for each arthritis type, among those patients with that condition: First Nations vs non-First Nations Population