

## BACKGROUND

- The risk of hip fractures is known to be increased in rheumatoid arthritis (RA), yet few studies specifically look at the incidence of hip fractures in patients with RA compared to general population controls.
- Hip fractures have serious long-term consequences, including a high 1-year mortality rate (usually 20-30%) and poor functional recovery, with approximately 50% not attaining pre-fracture functional status.

## OBJECTIVES

- To estimate the incidence of hip fractures in RA compared to the general population.

## METHODS

**Study Design:** We conducted a retrospective cohort study of a population-based incident RA cohort with matched controls from the general population using administrative health data from the province of British Columbia (BC).

### Study Sample:

- Using physician billing data and a previously published RA definition, we assembled an incident cohort of individuals with RA onset between January 1, 1997 and December 31, 2009.
- Controls (with no diagnosis of RA or other inflammatory arthritis) were selected randomly from the general population, and matched 2:1 to RA patients on birth year, gender and index year.
- RA and general population controls with prior hip fractures, pathological fractures or Paget's disease were excluded.

**Data:** Data were obtained from administrative health databases on all physician visits, hospital admissions and medications dispensed on all individuals with follow-up until December 2014.

### Outcome Definition:

- Hip fractures (ICD9-CM codes 820.0, 820.2; ICD10-CA codes S72.0, S72.1, S72.2) were identified using hospitalization data from January 1997 to December 2014 (up to 25 codes defining reason for admission or complications during hospitalization).

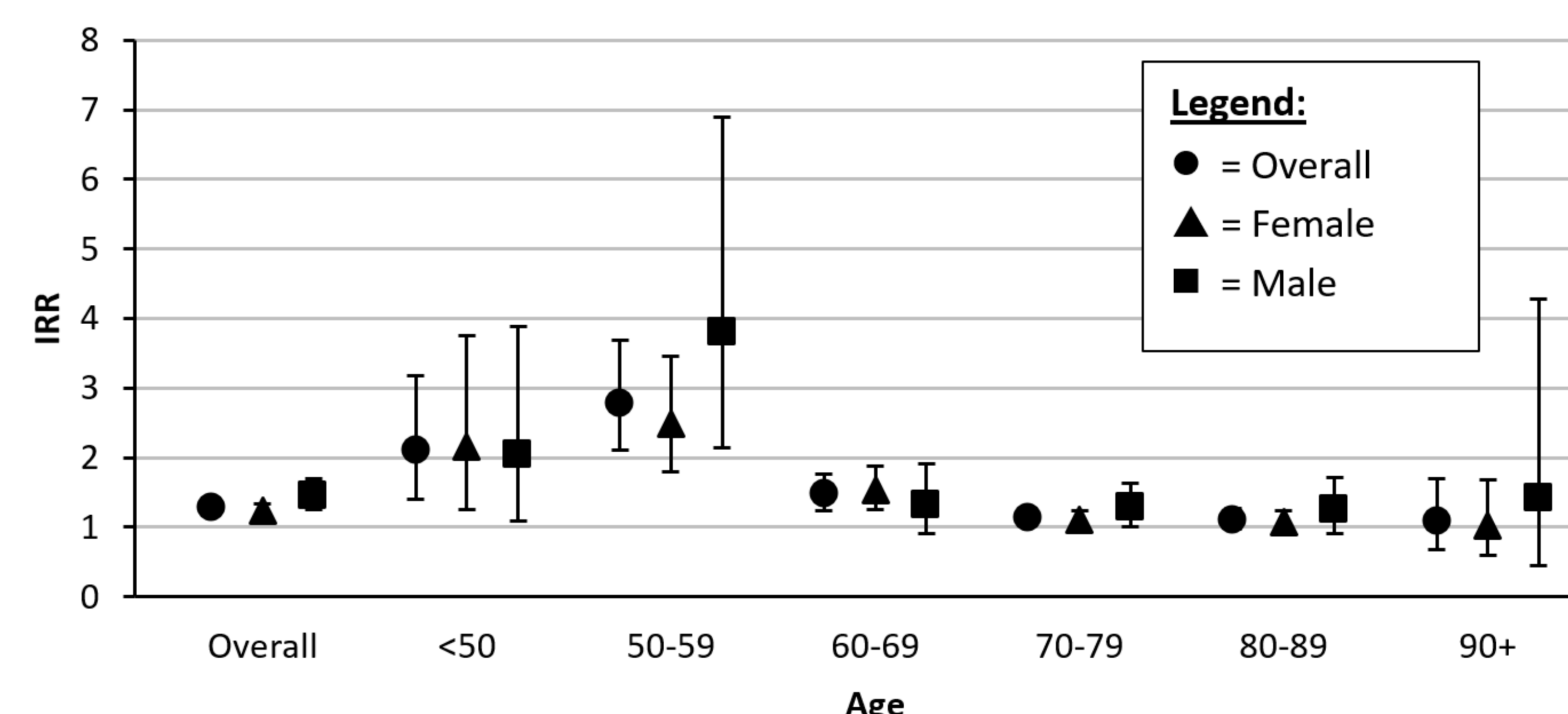
### Analyses:

- Incidence rates of hip fracture and 95% confidence intervals (CIs) were calculated, along with incidence rate ratios (IRRs) representing the risk of hip fracture in RA compared to the general population.
- Crude incidence rates were calculated as number of new hip fractures per person-year (PY).
- Cox proportional hazard models were used to compare age and sex adjusted risk of hip fracture in RA relative to general population (aHR with 95% CI).

## RESULTS

**Table 1. Descriptives of RA and General Population Cohorts**

	RA N = 37,616	General Population N = 75,213
<b>Sample Characteristics</b>		
Nu. person years of follow-up	360,521	732,249
Female, n (%)	24,987 (66%)	49,880 (66%)
Age at index date, mean (SD) years	57.3 (16.6)	57.2 (16.6)
<b>Results</b>		
Nu. of fractures	1,314	2,083
Incidence rate hip fractures per 1000 PY (95% CI)	3.6 (3.4, 3.8)	2.8 (2.7, 3.0)
Fracture type, transcervical, n (%)	701/1314 (53.4%)	1089/2083 (52.3%)
Age at hip fracture, mean (SD) years	79.5 (10.8)	81.6 (9.3)
Received surgery, n (%)	1220/1314 (92.9)	1927/2083 (92.5)



**Figure 1. Crude IRRs (95% CIs) of hip fracture in RA vs. general population, by age and sex**

- Overall crude incidence rate ratio (IRR) was 1.28 [95% CI: 1.20; 1.37].
- IRR was slightly higher in men [1.45 (1.25, 1.69)] than women [1.24 (1.14, 1.34)]
- IRR decreased with age.
- In Cox-PHM adjusted for age and sex, persons with RA had 28% greater risk of hip fracture than persons without (HR 1.28, 95%CI 1.19, 1.37).

## CONCLUSIONS

- Persons with RA had a 28% higher risk of hip fracture than age and sex matched controls from the general population.
- Relative risk was greater at younger ages, and in men.
- Given the impact of hip fracture, these findings have important implications for persons with RA in terms of falls prevention specifically targeting RA and functional recovery after hip fracture.