

# Comparison of Alberta Population Counts between the Alberta Health Care Insurance Plan Registry and the 2006 Census of Canada

**Michael Sanderson**

# Project Working Group

Yan Jin, Alberta Health and Wellness

Erik Ellehoj, Ellehoj Redmond Consulting

Michael Sanderson, Alberta Health and Wellness

Shaun Malo, Alberta Health and Wellness

Michael Haan, University of Alberta

David Odynak, University of Alberta

# Objective

Two main data sources for population counts of Alberta are the Alberta Health Care Insurance Plan (AHCIP) Registry and the Census of Canada.

# Objective

Two main data sources for population counts of Alberta are the Alberta Health Care Insurance Plan (AHCIP) Registry and the Census of Canada.

As the collection and reporting methods used for generating population counts by the AHCIP Registry and the Census differ greatly, it is important that these methods are fully understood.

# Objective

Two main data sources for population counts of Alberta are the Alberta Health Care Insurance Plan (AHCIP) Registry and the Census of Canada.

As the collection and reporting methods used for generating population counts by the AHCIP Registry and the Census differ greatly, it is important that these methods are fully understood.

Understanding differences in the population counts and the reasons for those differences is necessary in determining which population estimate is appropriate for use in a particular circumstance.

# Background

## Alberta Health Care Insurance Plan (AHCIP) Registry

Health care coverage in Alberta under the AHCIP is nearly universal.

Members of the RCMP, Canadian Armed Forces and federal penitentiary inmates are excluded, as these individuals are covered under federal plans.

In addition, some individuals may choose to opt out of the AHCIP (while still being registered) and some individuals choose not to register.

# Background

## Alberta Health Care Insurance Plan (AHCIP) Registry

The AHCIP Registry is populated with information collected during the application process for AHCIP coverage.

These data are maintained through notification of account holder information changes and AHCIP premium payment processing.

# Background

## Alberta Health Care Insurance Plan (AHCIP) Registry

Individuals that have moved to Alberta from another province remain covered under their originating province's health care plan until the beginning of the third month of residency in Alberta.

Conversely, those individuals that leave Alberta and move to another province will retain AHCIP coverage in a similar fashion.

# Background

## Census of Canada

The Census of Canada is a *de jure* census (i.e. people are counted based on their usual place of residence) and is conducted every five years, most recently on May 16, 2006.

# Background

## Census of Canada

“The census enumerates the entire Canadian population, which consists of Canadian citizens (by birth and by naturalization), landed immigrants and non-permanent residents and their families living with them in Canada.

Non-permanent residents are persons who hold a work or student permit, or who claim refugee status. The Census also counts Canadian citizens and landed immigrants who are temporarily outside the country on Census Day.” – [www.statcan.ca](http://www.statcan.ca)

# Results

## Provincial Comparison

At the provincial level, the total population for 2006 was very similar between the two sources, with a difference of only -0.1 percent. When the population counts were examined by age and sex categories, the difference between sources was less than 2 percent for most categories (range: -5.4 percent to 2.7 percent).

# Results

## Regional Health Authority Comparisons

The difference between the AHCIP Registry and the Census at the level of the Regional Health Authorities (n = 9) was small for the total populations (range: -1.2 percent to 2.5 percent) but were large in some cases when age and sex categories were considered (range: -13.3 percent to 20 percent). Most age- and sex-specific differences were less than 5 percent.

# Results

## Census Division Comparisons

Census Divisions (n = 19) had small differences between the sources for the total populations (range: -3.7 percent to 5.1 percent) and larger differences by age and sex (range: -15.2 percent to 39.0 percent). Most age- and sex-specific differences were less than 10 percent.

# Results

## Sub-regional Health Authority and Public School District Comparisons

The differences in total populations by Sub-regional Health Authority (n = 70) and Public School District (n = 42) were more noticeable between the AHCIP Registry and the Census (range: -11.6 percent to 36.3 percent and -17.3 percent to 21.5 percent, respectively).

# Results

## Age and Sex Comparisons

In general, the AHCIP Registry had lower population counts, except for children and women of child-bearing age. The greatest difference between the sources was at approximately 20-29 years of age where the AHCIP Registry reported much lower population counts, particularly for males.

# Results

## Sub-provincial Comparisons

There were substantial variations in population counts by age, sex and geographic area. The variations were much more distinct by age and geographic area than by sex.

Generally, the smaller the population of a particular category, the greater the difference. The difference between sources was by and large more extreme for the male population.

# Sources of Variation

## Coverage

The inclusion criteria between the two sources is different. The Census seeks to include all residents, while the AHCIP Registry includes those with AHCIP coverage (excludes RCMP, military, etc).

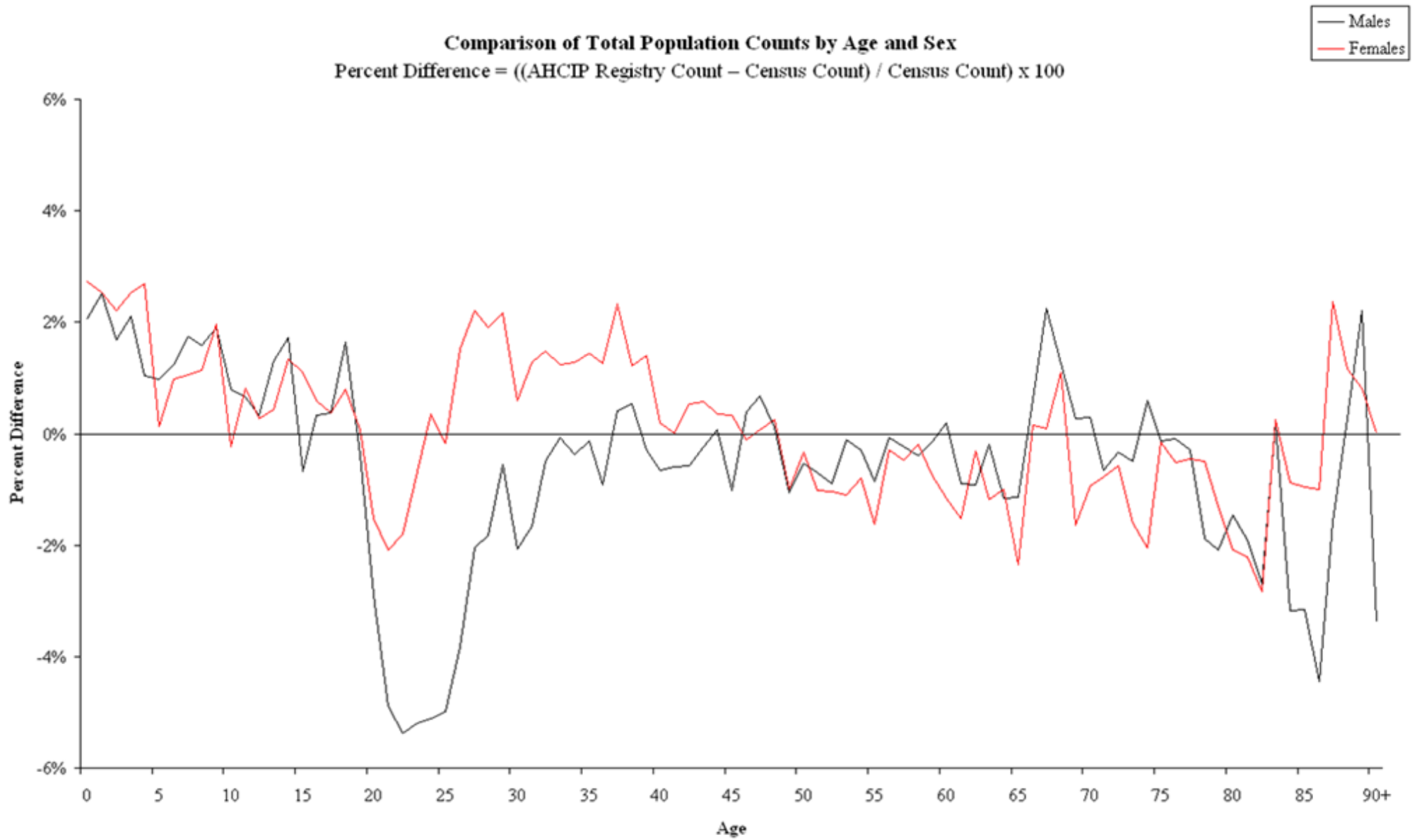
# Sources of Variation

## Coverage

The inclusion criteria between the two sources is different. The Census seeks to include all residents, while the AHCIP Registry includes those with AHCIP coverage (excludes RCMP, military, etc).

There is also a difference in motivation to participate. Some individuals choose not participate in the Census (undercoverage) and in the AHCIP (non-coverage). The proportion of those choosing not to participate are not distributed evenly across individuals.

**Comparison of Total Population Counts by Age and Sex**  
Percent Difference =  $((\text{AHCIP Registry Count} - \text{Census Count}) / \text{Census Count}) \times 100$



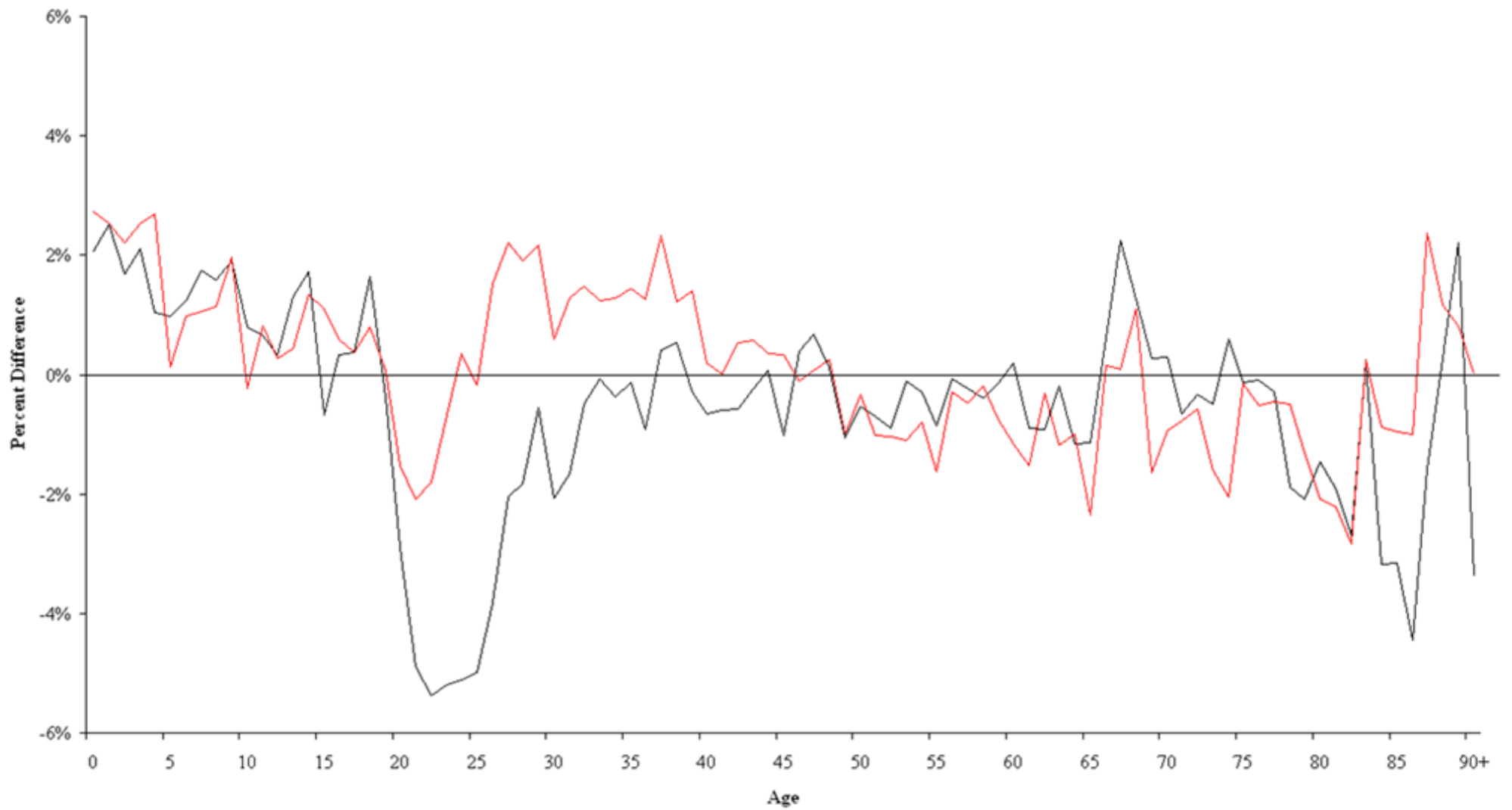
# Sources of Variation

## Coverage

Young children and women of child-bearing age are over-represented in the AHCIP Registry, compared with the Census. This makes intuitive sense as these groups are compelled to receive health care services.

**Comparison of Total Population Counts by Age and Sex**  
Percent Difference =  $((\text{AHCIP Registry Count} - \text{Census Count}) / \text{Census Count}) \times 100$

— Males  
— Females



# Sources of Variation

## Coverage

Young children and women of child-bearing age are over-represented in the AHCIP Registry, compared with the Census. This makes intuitive sense as these groups are compelled to receive health care services.

Interestingly, seniors are somewhat under-represented in the AHCIP Registry, compared with the Census. This is counter-intuitive as seniors tend to be compelled to receive health care services and the AHCIP does not charge seniors premiums.

# Sources of Variation

## Geographic Allocation

The geographic boundaries in the released Census data are based on Dissemination Areas (DA) and in the AHCIP registry are based on postal codes.

A file called the Postal Code Translation File (PCTF) is used to reconcile the boundaries but the matches are not coterminous.

# Conclusion

At the provincial level, the population counts from the AHCIP Registry and the Census are similar. However, as the counts are stratified by age, sex and geography, differences become apparent.

# Conclusion

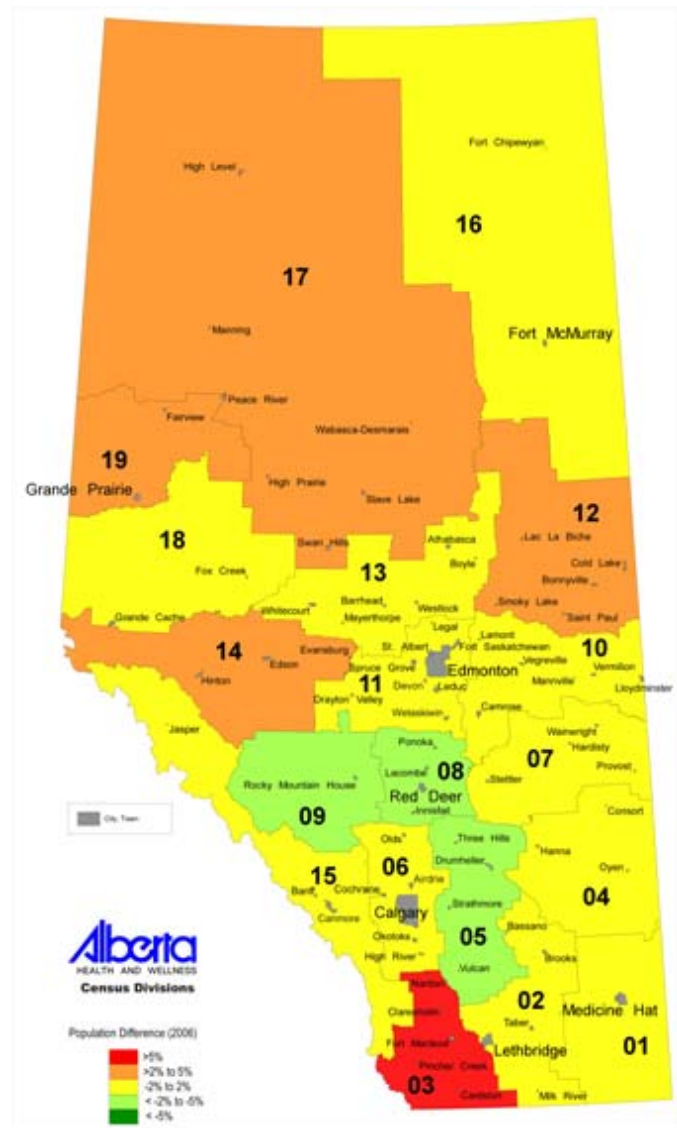
At the provincial level, the population counts from the AHCIP Registry and the Census are similar. However, as the counts are stratified by age, sex and geography, differences become apparent.

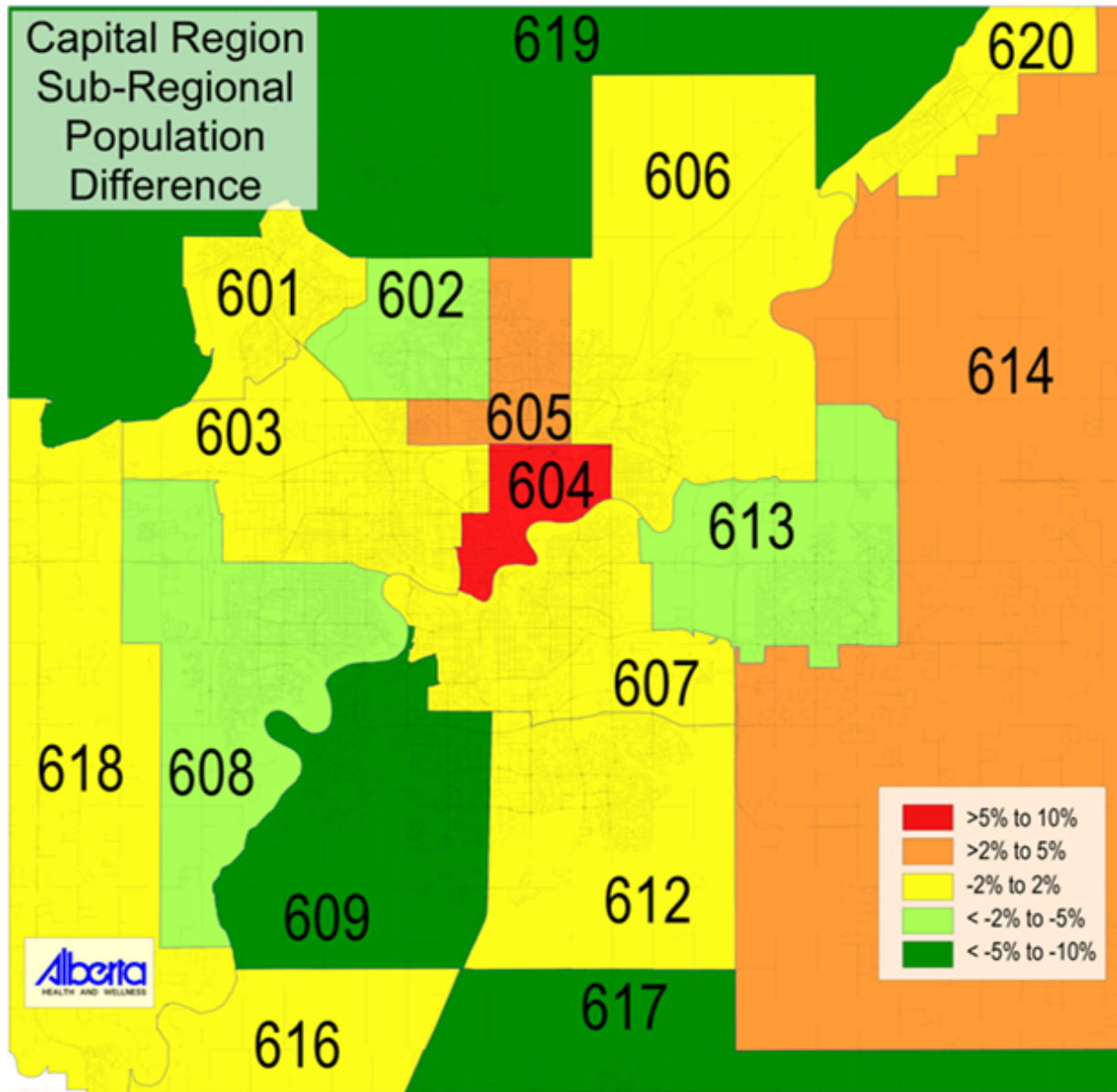
Since AHCIP service utilization data is reconciled with the AHCIP registry, studies using this data should use AHCIP registry data for denominators, as the boundaries will be aligned.

Similarly, studies using Census data should rely on Census denominators.

# Future Investigations

Differences between population counts in the AHCIP Registry and the Census are due to a number of causes. Future work will focus on determining the amount of error contributed by each source.





# Future Investigations

Differences between population counts in the AHCIP Registry and the Census are due to a number of causes. Future work will focus on determining the amount of error contributed by each source.

Statistics Canada also publishes population estimates based on the Census population counts, that account for undercoverage. Future work will focus on evaluating the differences between the population estimates and the AHCIP Registry.