



DEPARTMENT
OF HEALTH

CANCER INCIDENCE AND MORTALITY

Among The Métis
Population Of Alberta,
2013–2019



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Updated from *Cancer Incidence and Mortality Among the Métis Population of Alberta, Canada*
(2007–2012) by Diana C. Sanchez-Ramirez, Amy Colquhoun, Sara Hassen Parker, Jason Randall,
Lawrence W. Svenson, and Don Voaklander.

Acknowledgments

This updated report was made possible through funding from the Canadian Partnership Against Cancer (CPAC) and partnerships with the *CANHelp Working Group at the University of Alberta* and the *Analytics and Performance Reporting Branch of Alberta Health*.

The Background, Introduction and Methods sections of this report are adapted from *Cancer Incidence and Mortality Among the Métis Population of Alberta, Canada (2007–2012)* by Diana C. Sanchez-Ramirez, Amy Colquhoun, Sara Hassen Parker, Jason Randall, Lawrence W. Svenson, and Don Voaklander.



A Message from the President

Our community has felt the full force of this disease as it stole our elders, our family members, and our friends. As the President of the Métis Nation of Alberta, I am pleased to share our cancer report: *Cancer Incidence and Mortality Among the Métis Population of Alberta, Canada (2013–2019)*.

Congruent with the previous cancer report, *Cancer Incidence and Mortality Among the Métis Population of Alberta, Canada (2007–2012)*, this report found the incidence of bronchial and lung cancer remains higher compared to the non-Métis population in Alberta. This analysis is essential in understanding the cancer incidence and mortality among Métis Albertans, informing us of interventions we can likely adopt to alleviate the burden of cancer among Métis Albertans.



I would like to thank our partners, the CANHelp Working Group at the University of Alberta and the Analytics and Performance Reporting Branch of Alberta Health, for their support in developing this report.

— Audrey Poitras
President, Métis Nation of Alberta

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Executive Summary

Background

Cancer is a disease characterized by abnormal cell growth in the body. In a normal cell cycle, old cells will die and new cells will grow in their place. However, in a cancerous cell cycle, cells become abnormal with age but do not die, which means new cells form when they are not needed. This unregulated cell cycle can cause illness and death. Cancer cells can also spread from where they arise to other parts of the body, known as “metastasis.”

Methods

This report is an update of a previous analysis of cancer incidence in the Métis population in Alberta. Alberta Health (AH) provided data for this study. AH identified Métis people using the Métis Nation of Alberta (MNA) Identification Registry. After Métis people were identified, AH removed personal information from the data and aggregated the information, reporting only case rates by category, to ensure confidentiality.

Main Findings

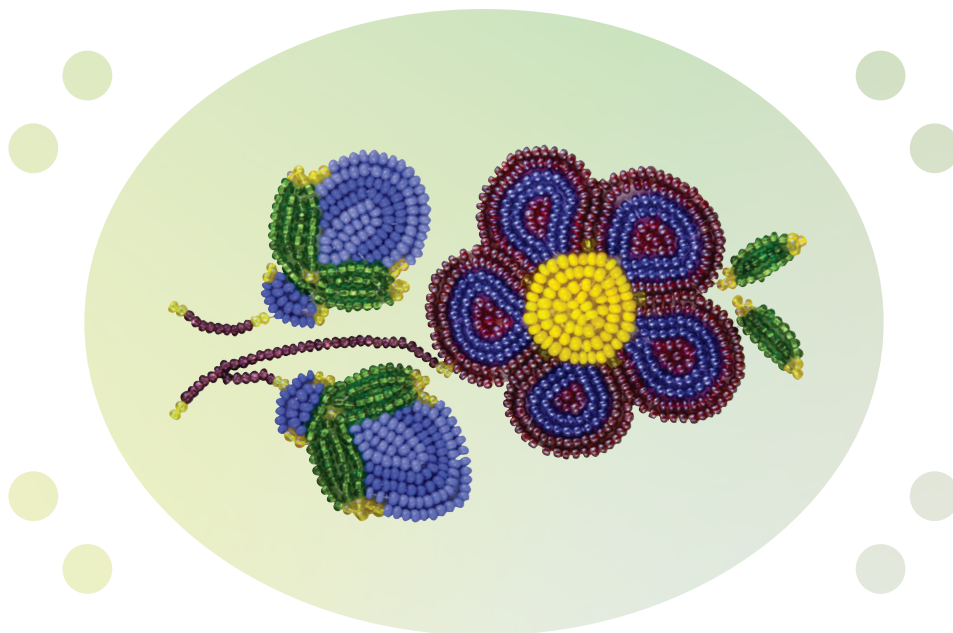
Consistent with the previous report, overall incidence and mortality estimates for most types of cancer were similar when comparing Métis and non-Métis people. The most common cancers for both populations were breast, colorectal, prostate, bronchial and lung cancers. However, bronchial and lung cancer incidence was elevated among Métis women relative to non-Métis women. Bronchial and lung cancer incidence rate ratios were reversed by sex compared to the 2007–2012 analysis, signalling a shift in

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who to target for policy interventions. Age-standardized incidence rates (ASIRs) for all cancers combined decreased slightly from 2013–2019 for non-Métis people, while ASIRs either increased or returned to baseline during the same period among Métis people; however, this trend estimate is very imprecise due to the small number of cancer cases in the Métis population.

Conclusions

Because cancer incidence has remained stable in the Métis population of Alberta since 2007, increased inclusion of the MNA in policy design, research, and cancer prevention strategies is crucial to ensure appropriate interventions are implemented.



Introduction

The term “Métis” refers to a group of Indigenous peoples in Canada with mixed First Nations and European heritage who have their own distinct culture, traditions, and history, and is one of three recognized Indigenous peoples in Canada. In a landmark 2003 human rights case, the Supreme Court of Canada acknowledged the Métis as rights-bearing Indigenous peoples. Section 35 of the Constitution Act, 1982, which contains the Canadian Charter of Rights and Freedoms, protects the practices, traditions, and customs of Indigenous peoples in Canada, including the right to use and occupy their traditional lands, and the right to self-government.¹

The Métis National Council defines Métis as “a person who self-identifies as Métis, is distinct from other Aboriginal [Indigenous] peoples, is of historic Métis Nation Ancestry, and who is accepted by the Métis Nation”.² Those who fulfill these requirements can apply to obtain Citizenship in their province of residence. The Métis Nation of Alberta (MNA) is the governing body for the Métis people in Alberta, representing over 56,000 Citizens. The MNA strives to advance the self-determined priorities of its Citizens through socio-economic, health, cultural, and educational development.

Canadian Census data from 2016 showed 587,545 Canadians who reported Indigenous ancestry identified as Métis. They represented 35% of the total Indigenous population, and 1.6% of Canada’s population.⁴ This was an increase of 2.7% and 0.2%, respectively, from the 2011 census (reported in⁵). Although numerous health studies on Indigenous populations exist, few studies differentiate findings among the three distinct Indigenous peoples recognized in the Canadian Constitution: Métis, Inuit, and First Nations. Métis people are also particularly under-represented in health research relative to First Nations and Inuit populations, partly due to a limited ability to identify Métis people within existing administrative health databases.

Studies characterizing the health of Métis people are needed to identify health priorities, develop relevant policy, and design and implement effective and culturally meaningful strategies and interventions responding to the needs of this population. Currently, the MNA maintains a registry identifying Citizens living in Alberta. The linkage of the MNA Identification Registry to existing disease registries and

administrative health databases offers an opportunity to better understand the health outcomes and health services used by Métis people.

Responsible for 25% of all deaths, cancer is the leading cause of death in Canada by a large margin.⁶ According to the Canadian Cancer Society, Canada's leading charitable funder of cancer research, about 40% of all Canadians will develop cancer in their lifetime.⁷ Results from a follow-up study conducted from 1991 through 2001 reported cancer as the leading cause of death among Métis women (33% of all deaths), and the second-leading cause of death among Métis men (23% of all deaths). Other studies have shown the incidence of all cancers combined is not higher among Indigenous peoples compared to non-Indigenous peoples.^{8,9} However, there is little information available about cancer patterns among Métis people in comparison with the non-Métis population.

The previous cancer incidence and mortality report, authored by Diana C. Sanchez-Ramirez, Amy Colquhoun, Sara Hassen Parker, Jason Randall, Lawrence W. Svenson, and Don Voaklander, analyzed cancer incidence data in the registered Métis population from 2007 to 2012 with the aim of addressing this health research gap. Their analysis showed the incidence of bronchial and lung cancer was elevated for Métis men compared to non-Métis men, while all other cancer incidences and mortalities were similar. This subsequent report aims to continue the previous analysis, using data from 2013–2019, with the goal of comparing cancer incidence and mortality among Métis people to non-Métis people in Alberta.

The Background, Introduction and Methods sections of this report are adapted from *Cancer Incidence and Mortality Among the Métis Population of Alberta, Canada (2007–2012)* by Diana C. Sanchez-Ramirez, Amy Colquhoun, Sara Hassen Parker, Jason Randall, Lawrence W. Svenson, and Don Voaklander.

Methods

Data Sources

Because this report is an update of the 2007–2012 analysis of cancer incidence in the Métis population in Alberta, the methods are consistent with the previous 2007–2012 version.

This is a population-based descriptive epidemiological study using cancer incidence and mortality data from 2013 through 2019. The target population included all people living in Alberta during the study period, without age restriction. Alberta Health (AH) merged data from various sources (Table 1), including the MNA Identification Registry, the Alberta Cancer Registry (ACR), and the Alberta Health Care Insurance Plan Central Stakeholder Registry (Table 1). AH assigns a unique Personal Health Number (PHN) to all Albertans through the Health Care Insurance Plan. This lifetime identifier, which is captured on all health care administrative records when people access any health service, allows for 1:1 linkage between databases. AH used an encrypted PHN for data linkage in the present study to ensure patient anonymity. AH analyst Li Huang conducted statistical analysis on-site to further protect patient privacy.

TABLE 1. **DATA SOURCES**

DATA TYPE	DATA SOURCE
Cancer cases, new diagnoses, and deaths	Alberta Cancer Registry (ACR)
Lifetime identifiers (PHN)	Alberta Health Care Insurance Plan
Métis Citizen identification & population estimates	MNA Identification Registry
Population estimates, non-Métis people	Alberta Health Care Insurance Plan Central Stakeholder Registry

Cancer Cases

The ACR, maintained by Alberta Health Services, actively registers all cancer cases diagnosed in Alberta and all cancer deaths recorded in the province. All new cases (also known as incident cases) of invasive cancer diagnosed between 2013 and 2019, excluding non-melanoma skin cancers and non-female breast cancers, were included. Non-melanoma skin cancers are generally not counted in all-cause cancer statistics because they are common and do not usually cause severe disease; non-female breast cancers were not included due to very small case numbers. To identify cancer cases in the Métis population, AH linked the MNA Identification Registry with the ACR. After Métis people were identified, AH removed personal information from the data and aggregated the information to ensure confidentiality. The AH analyst compiled the number of cases observed over the study period by Métis status, gender, and cancer site as classified by the Third Edition of the International Classification of Disease for Oncology (ICD-O-3).

Cancer sites with sufficiently large numbers of cases in the Métis population with separate reporting include bronchus/lung (C34), breast (C50), colorectal (C18C20), and prostate (C61). The AH analyst grouped cancer sites with few cases in the Métis population into larger topographical categories to protect patient privacy. These topographical categories included: Head and neck (C00C14, C30C32); digestive organs (excluding colorectal C15C17, C21C26); female reproductive organs (reclassified from “female genital organs”, C51C58); urinary tract (C64C68); hematopoietic and reticuloendothelial systems (C42, C77); and all other topographies. All deaths due to cancer within the study period were included; cancer sites for deaths were classified using the Canadian Enhancement of the ICD-10.¹¹

Statistical Analysis

For the seven-year study period (2013–2019), the AH analyst estimated standardized cancer incidence rates (SIRs) and standardized mortality rates (SMRs) by Métis status, gender, each of the most common four cancer sites (lung, colorectal, breast, and prostate), and all other cancers combined. Rates were age-standardized to the 2011 Canadian population using five-year age groups. The MNA Identification Registry and the Alberta Health Care Insurance Plan Central Stakeholder Registry provided population estimates as denominators for rates among Métis and non-Métis people, respectively. To assess rates over time, a three-year moving average was used to minimize fluctuations resulting from small numbers of cases in the Métis population. Rate ratios (RRs) were estimated from the standardized rates with non-Métis as the reference category, with 95% confidence intervals (CIs) to indicate the precision of estimated RRs. Data analysis was performed using SAS 9.3 software.



Results

Demographics

An annual average of 69,028 Métis people (51% female) and 4,146,999 non-Métis people (50% female) living in Alberta between 2013 and 2019 were included in this updated analysis. The annual average of MNA Citizens increased by 290% since the previous study period, with only 23,793 MNA Citizens on average during the 2007–2012 period. In general, Métis people had a younger age distribution than non-Métis people, with 63.5% of the registered Métis population under the age of 35 compared to 47.1% of the non-Métis population. This was a large relative increase from the 2007–2012 report when the proportion of the population under the age of 35 was 52.7% of the registered Métis population and 48.8% of the non-Métis population; however, this change in demographic distribution may be an artifact of registration rather than a true demographic shift. Consistent with the 2007–2012 report, Métis people were more likely to live in rural areas (34.2%) relative to non-Métis people (20.4%). In this analysis, rural areas were defined as “towns and municipalities outside of the commuting zone of large urban centres” (Table 2).

Incidence of Cancer

Between 2013 and 2019, there were 1,157 new cases of cancer diagnosed in Métis people, and 126,117 new cases of cancer diagnosed in the non-Métis population. Métis people tended to develop cancers at a younger age compared to non-Métis people: the proportion of new cancer cases diagnosed under the age of 44 was 35.8% in Métis people and 18.8% in the non-Métis population. The most common type of cancer diagnosed in both sexes combined was bronchial or lung cancer for Métis people (11.7% of new cancers), and colorectal cancer (11.2% of new cancers) for the non-Métis population. However, the most common type of cancer overall was female breast cancer for Métis people as well as for non-Métis people: female breast cancer comprised 16.1% of all new cases in Métis people, and 15.1% in non-Métis people. The frequency of other cancer diagnoses was similar for Métis and non-Métis people (Table 2). Topographies of specific incident cancer cases within broad

anatomical categories in the Métis population during the study period are shown in Table 3. Compared to the 2007–2012 report, lung cancers and hematopoietic and reticuloendothelial cancers represented a smaller proportion of new cancer cases, while female reproductive organ cancers increased slightly in proportion, in Métis and non-Métis people. Urinary tract cancers increased slightly in proportion for Métis people and decreased slightly in proportion for non-Métis people.

ASIRs for all cancers combined decreased slightly from 2013 to 2019 for non-Métis people, while ASIRs either increased or returned to baseline during this period among Métis people. Compared to the 2007–2012 study period, ASIRs estimated for 2013 to 2019 are elevated in Métis and non-Métis people. Over the seven-year study period, the lung cancer incidence rate in the Métis population was 1.3 times the lung cancer incidence rate in the non-Métis population; the 95% CI shows the data are compatible with a relative increase between 1.1–1.7 times. After stratifying by sex, Métis men had a similar incidence of lung cancer relative to non-Métis men, while Métis women had a lung cancer incidence rate 1.7 [95% CI 1.3–2.2] times the rate of non-Métis women. Otherwise, cancer incidence rates were largely similar in the Métis and non-Métis populations after adjusting for age.

Mortality Related to Cancer

Between 2013 and 2019, there were 222 cancer-related deaths in the Métis population and 41,700 deaths in the non-Métis population. Most cancer deaths during the study period were due to bronchial or lung cancers in both populations, with a rate of around 25 deaths per 100,000 people in the Métis population and around 23 deaths per 100,000 people in the non-Métis population. Other common causes of cancer death included breast cancer, prostate cancer, and colorectal cancer. Topographies of specific cancer sites within broader anatomical categories in the Métis population during the study period are shown in Table 3.

Métis people tended to have reduced mortality for all other common cancers relative to the non-Métis population, though these estimates are very imprecise due to the small number of Métis cancer deaths. Overall, the all-cause cancer mortality rate was similar in the two groups. The colorectal cancer mortality rate was 40% lower in the Métis population compared to the non-Métis population, after adjusting for age; however, the 95% CI covers a relative mortality rate as much as 66% lower or 10% higher. The breast cancer mortality rate was 37% lower in Métis women compared to non-Métis women: the 95% CI of 0.32–1.24 leaves uncertainty about the magnitude and direction of the association. The prostate cancer mortality rate was 55% lower in Métis men compared to non-Métis men; again, the 95% CI was quite wide (0.17, 1.17).



TABLE 2. **STUDY POPULATION, ALBERTA, 2013–2019**

CHARACTERISTICS								
	Average Annual Population Over 7 Years				New Cases of Cancer*			
	Métis		Non-Métis		Métis		Non-Métis	
	n	%†	n	%†	n	%†	n	%†
Total Population, N	69,028	100.0	4,146,999	100.0	1,157	100	126,117	100.0
Women	34,872	50.5	2,052,684	49.4	532	46.0	64,355	51.0
Living in Rural Area, n (%)	23,621	34.2	845,461	20.4	426	36.8	29,722	23.6
AGE GROUP (YEARS)								
	Average Annual Population Over 7 Years				New Cases of Cancer*			
	Métis		Non-Métis		Métis		Non-Métis	
	n	%	n	%	n	%	n	%
0-24	30,634	44.4	1,287,668	31.0	47	4.1	1,911	1.5
25-34	13,203	19.1	666,659	16.1	59	5.1	3,235	2.6
35-44	9,498	13.8	615,412	14.8	108	9.3	6,721	5.3
45-54	7,373	10.7	554,421	13.4	200	17.3	15,481	12.3
55-64	4,883	7.1	506,055	12.2	286	24.7	32,074	25.4
65-74	2,423	3.5	302,283	7.3	283	24.5	34,821	27.6
75+	1,015	1.5	214,501	5.2	174	15.0	31,874	25.3
TYPES OF CANCER‡								
	New Cases of Cancer*							
	Métis				Non-Métis			
	n		%		n		%	
Bronchus or Lung	135		11.7		13,955		11.1	
Colorectal	123		10.6		14,083		11.2	
Breast Cancer (female only)	186		16.1		19,154		15.1	
Prostate	132		11.4		16,625		13.2	
Head and neck	49		4.2		3,926		3.1	
Digestive organs, excluding colorectal	88		7.6		9,953		7.9	
Female reproductive organs	88		7.6		7,851		6.2	
Urinary tract	81		7.0		10,963		8.7	
Hematopoietic and reticuloendothelial systems	103		8.9		12,825		10.2	
Other	172		14.9		16,782		13.3	
Overall mortality associated with cancer*, n	222		—		41,700		—	

* Between 2013 and 2019, excluding non-melanoma skin cancer

† % = $n/N \times 100$ for that group (Métis or non-Métis)

‡ See Table 3

TABLE 3. **TOPOGRAPHIES OF INCIDENT CANCER CASES AND DEATHS OBSERVED IN THE MÉTIS POPULATION BY BROAD ANATOMICAL GROUP, ALBERTA, 2013–2019**

TOPOGRAPHY		
Anatomical Category	Incident Cancer Cases	Cancer Deaths
Head and neck	Lip; base of tongue; tongue, other, and unspecified; palate; mouth, other, and unspecified; tonsil; oropharynx; nasopharynx; lip oral cavity, pharynx, other, and unspecified; accessory sinuses; larynx	None recorded
Digestive organs	Esophagus; stomach; small intestine; anus and anal canal; liver and intrahepatic bile ducts; gallbladder; biliary tract, other, and unspecified; pancreas	Esophagus; stomach; small intestine; anus and anal canal; liver and intrahepatic bile ducts; gallbladder; biliary tract, other, and unspecified; pancreas
Female reproductive organs	Vulva; vagina; cervix uteri; endometrium; other uterus and uterus, not otherwise specified; ovary	None recorded
Urinary tract	Kidney; renal pelvis; bladder	None recorded
Hematopoietic and reticuloendothelial systems	Non-Hodgkin's lymphoma; leukemia; multiple myeloma and plasmacytoma; other hematopoietic and reticuloendothelial	Non-Hodgkin's lymphoma; leukemia; multiple myeloma and plasmacytoma; other hematopoietic and reticuloendothelial
Other	Bones, joints, and articular cartilage of limbs; connective, subcutaneous, and other soft tissues; melanoma of skin; penis; testis; brain; thyroid gland; other and ill-defined sites; unknown primary	Hypopharynx; connective, subcutaneous, and other soft tissues; retroperitoneum and peritoneum; prostate gland; brain; thyroid gland; unknown primary

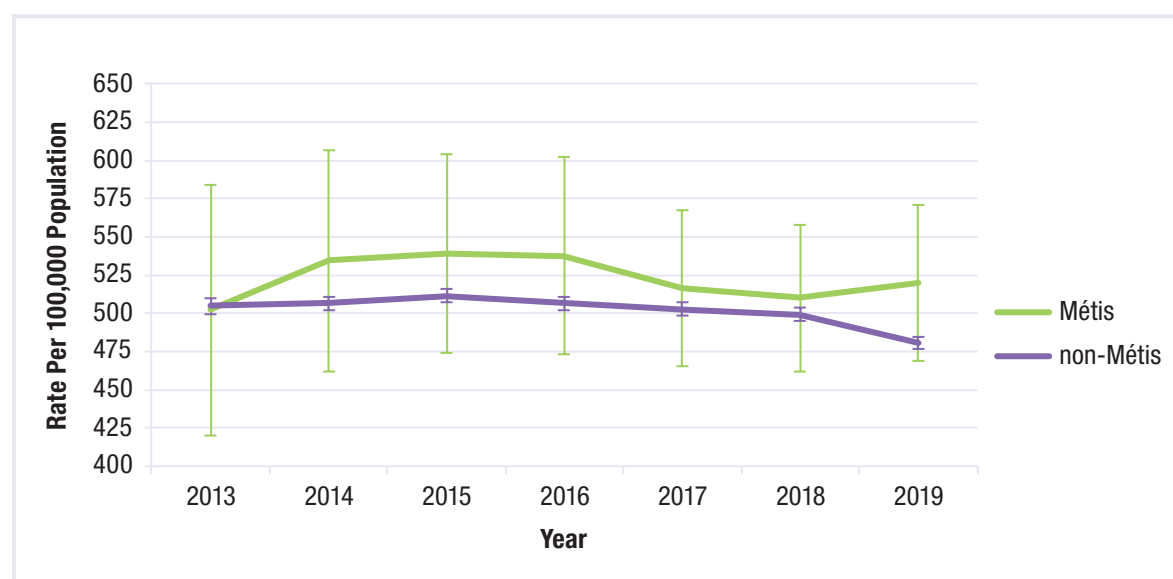
TABLE 4. **AGE-STANDARDIZED INCIDENCE RATES (ASIRs) FOR SPECIFIC CANCER SITES IN MÉTIS AND NON-MÉTIS PEOPLE BY SEX, ALBERTA, CALCULATED OVER A SEVEN-YEAR PERIOD (2013–2019)**

Sex	Métis		Non-Métis		Rate Ratio	95% CI
	ASIR	95% CI	ASIR	95% CI		
BRONCHUS/LUNG						
All	79.4	63.2, 95.7	57.8	56.9, 58.8	1.37	1.12, 1.69
Male	59.8	43.4, 76.2	59.0	57.6, 60.5	1.01	0.93, 1.33
Female	96.3	69.7, 123	57.5	56.2, 58.8	1.68	1.27, 2.21
COLORECTAL						
All	55.0	44.3, 65.7	57.2	56.2, 58.1	0.96	0.33, 1.10
Male	71.6	53.5, 89.8	67.3	65.8, 68.8	1.07	0.83, 1.37
Female	40.0	27.9, 52.2	48.0	46.8, 49.2	0.83	0.62, 1.13
BREAST						
Female	143	119, 166	148	146, 150	0.97	0.82, 1.14
PROSTATE						
Male	138	112, 163	139	137, 141	0.99	0.82, 1.19
ALL CANCERS						
All	522	485, 559	504	501, 507	1.04	0.96, 1.11
Male	537	482, 593	543	539, 547	0.99	0.89, 1.10
Female	508	459, 558	475	471, 479	1.07	0.97, 1.18

TABLE 5. **AGE-STANDARDIZED MORTALITY RATES (ASMRs) FOR SPECIFIC CANCER SITES IN MÉTIS AND NON-MÉTIS PEOPLE, ALBERTA, CALCULATED OVER A SEVEN-YEAR PERIOD (2013–2019)**

Type of Cancer	Métis		Non-Métis		RR	95% CI
	ASMR	95% CI	ASMR	95% CI		
Bronchus/Lung	24.7	15.4, 34.0	22.9	22.3, 23.5	1.08	0.74, 1.57
Colorectal	6.24	2.46, 10.0	10.4	10.0, 10.8	0.60	0.33, 1.10
Breast (Female only)	7.6	2.5, 12.7	11.9	11.4, 12.5	0.63	0.32, 1.24
Prostate (Male only)	6.6	2.5, 12.9	14.7	13.9, 15.4	0.45	0.17, 1.17
All cancers	157	129, 184	176	175, 178	0.89	0.74, 1.06

FIGURE 1. **AGE-STANDARDIZED INCIDENCE RATES (ASIRs) FOR ALL CANCERS IN MÉTIS AND NON-MÉTIS PEOPLE BY YEAR, ALBERTA. THREE-YEAR MOVING AVERAGE. RATES IN MÉTIS PEOPLE ARE BASED ON A SMALL NUMBER OF CASES SO VARIABILITY SHOULD BE INTERPRETED WITH CAUTION.**



Discussion

This is the second report describing cancer incidence and mortality in the Métis population of Alberta, compared to the non-Métis population within the same province. ASIRs for all cancers combined decreased slightly over the study period from 2013 to 2019 for non-Métis people, but a similar decrease was not observed among Métis people.

The previous analysis of 2007–2012 data estimated a higher incidence of bronchial and lung cancers in Métis men relative to non-Métis men, but little relative difference in incidence or mortality for other cancers. Data from 2013–2019 indicates the incidence of bronchial and lung cancers decreased in Métis men to incidence rates similar to non-Métis men but increased by 68% in Métis women. The reason for this increase over time in Métis women requires further research.

The authors of the 2007–2012 report pointed out consistencies with studies carried out in Ontario and Québec using data from 1988 to 2004, which reported similar cancer risks when comparing Indigenous and non-Indigenous populations; however, recent analyses with updated Indigenous identifiers in health administrative databases suggest First Nations people in Ontario have a higher incidence of lung, colon, rectum, kidney, cervix, and liver cancers relative to non-Indigenous people.⁸ It should be kept in mind that future updates to Métis administrative identifiers may reveal different incidence and mortality patterns.

Focus group discussions led by the MNA in 2018 and 2019 demonstrated members of the Métis community feel alienated by modern cancer intervention strategies. Health and well-being is often holistic for Métis Albertans, and some Métis people perceive western medicine has too many gaps and divergent agendas to meet their needs. Furthermore, focus group discussions identified the perception that western medicine does not legitimize Métis approaches to wellness. These inadequacies create barriers for Métis people seeking cancer care; such barriers contribute to late diagnosis and poor treatment outcomes.

This study has several limitations. The Métis population was identified using the MNA Identification Registry, and evidence shows this identification registry is incomplete. Data from the 2016 census shows over 114,000 Albertans self-identified as Métis,¹² a much greater number than the population of registered MNA Citizens, which averaged 69,028 (61% of the census estimate) across the study period. This discrepancy suggests about 40% of the Métis population was likely misclassified as non-Métis in this analysis. Assuming this incorrect classification occurred at random with respect to cancer risk and other variables used for comparison, it would most likely contribute to underestimating the rate ratios presented in this report, though this bias would be small (if the Métis population was undercounted by as much as 100,000, this would be only 2.5% of the Alberta population classified as non-Métis). It is likely, however, that Métis people who choose to become MNA Citizens differ from Métis people who do not make this choice in ways related to cancer risk. If Métis people who are MNA Citizens are at lower cancer risk than Métis people who are not MNA Citizens, then the rate ratios presented in this report would be underestimates. On the other hand, if Métis women who became MNA Citizens during the study period included a much higher proportion of smokers relative to the previous study period, this could explain the observed increase in lung cancer rates in Métis women. It should also be noted that because the registered Métis population is relatively small, the number of new cancer cases and cancer deaths in Métis people did not yield good statistical precision for drawing strong conclusions about modest differences in rates. However, the annual average number of registered Métis people increased by 290% between the two reports; as more Métis people register with the MNA, the precision and accuracy of future analyses will improve.

The main strength of these investigations is the use of high-quality provincial health administrative and disease registry data. The Alberta Cancer Registry (ACR) has maintained the North American Association of Central Cancer Registries (NAACCR) highest level of certification since 2005; NAACCR grades completeness, available data (cancer type, sex, race, age, and area), accuracy, and lack of observable errors (such as duplicate registration and misclassification). The ACR has achieved the highest level of certification for the longest period of time of all of Canada's cancer registries.

Another strength of this study is the collaboration between the MNA, the University of Alberta, and Alberta Health. The contributions of these institutions permitted the identification and analysis of cancer incidence and mortality in the registered Métis population of Alberta while protecting patient privacy, an achievement that would not be possible otherwise. These institutional collaborations will continue for future cancer research and health status surveillance of the Métis population.

The analysis presented in this report serves to address gaps in the information available on cancer in Métis people. This report is intended to be used by public health and health policy stakeholders to design and implement strategies directed at reducing cancer incidence and mortality in Métis people. For a deeper understanding of cancer in the Métis population, future research on specific risk factors and determinants of health is required.



Conclusions

Similar to the previous report, overall incidence and mortality estimates for most types of cancer were comparable for Métis and non-Métis people. An exception is bronchial and lung cancer; during 2007–2012, the bronchial and lung cancer incidence rate was higher in Métis men relative to non-Métis men while the rate of this cancer was similar in Métis and non-Métis women. In the 2013–2019 period, the bronchial and lung cancer incidence rate in Métis men decreased, becoming similar to the rate in non-Métis men, while the rate among Métis women increased, becoming higher than the rate in non-Métis women. Future research is needed to identify the reason for this change.

Cancer incidence and mortality has remained relatively stable in the Métis population since data collection began in 2007. Previous MNA focus group discussions determined interventions throughout the continuum of cancer care in Alberta are inadequate to respond to the needs of the Métis community. Inclusion of the MNA in policy design, research, and cancer prevention strategies is crucial to ensure appropriate interventions are implemented. New and increased collaboration with universities, provincial health agencies, and the MNA is necessary to ensure research and health surveillance programs are meaningful and relevant to the Métis population.

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Appendix: Glossary

Age-standardized incidence rates (ASIRs): The incidence rate that would have been observed, given the rates observed within age groups, in a population with the age structure of a selected reference population, known as the standard population.¹³ The rate within each age group, known as the age-specific rate, is estimated by dividing the number of new cancer cases diagnosed in an age group during a year by the number of people in that age group during that year. Cancer incidence rates are typically expressed per 100,000 people per year. The age-standardized rate is a weighted average of the age-specific rates, weighted by the age distribution of the standard population. Age standardization typically uses five-year age groups. Age-standardized rates permit valid comparison across populations with different age structures¹⁴. In this report, the standard population is the 2011 Canadian population.

Age-standardized mortality rates (ASMRs): The mortality rate that would have been observed, given the rates observed within age groups, in a population with the age structure of a selected reference population, known as the standard population.¹³ The rate within each age group, known as the age-specific rate, is estimated by dividing the number of cancer deaths occurring in an age group during a year by the number of people in that age group during that year. Cancer mortality rates are typically expressed per 100,000 people per year. The age-standardized rate is a weighted average of the age-specific rates, weighted by the age distribution of the standard population. Age standardization typically uses five-year age groups. Age-standardized rates permit valid comparison across populations with different age structures.¹⁴ In this report, the standard population is the 2011 Canadian population.

Cancer: A disease characterized by abnormal cell growth in the body.

Cancer incidence: The occurrence of new cancer cases diagnosed in a given population during a specific period of time.¹⁵ Cancer incidence measures include incidence counts, incidence proportions (used to estimate the risk of cancer), and incidence rates. Typically, cancer incidence is expressed as the rate of new cancer diagnoses per 100,000 per year.

Cancer mortality: The occurrence of deaths due to cancer in a given population during a specific period of time.¹⁶ Cancer mortality measures include mortality counts, mortality proportions (used to estimate the risk of death from cancer), and mortality rates. Typically, cancer mortality is expressed as the rate of cancer deaths per 100,000 per year.

Confidence interval: A range of values around an estimated measure that indicates the degree of statistical precision around the estimate. The confidence interval width indicates the degree of precision, with narrower intervals being more precise. The confidence interval indicates the range of values compatible with the data, assuming the statistical model is correct and there is no systematic error in the data. The width of the confidence interval is determined by the amount of data, the variability in the data, and the selected confidence level.¹⁷ This report uses a confidence level of 95%.

Determinants of health: Social, cultural, economic, physical, and biological factors that influence people's health, such as diet, physical activity, education, health services, social support networks, and genetics.¹⁸

Hematopoietic system: A system composed of organs and tissues responsible for the production of blood, for example, the bone marrow, spleen, and lymph nodes.¹⁹

Reticuloendothelial system: A network of cells found throughout the body that are responsible for the clearance of particles and soluble substances in the circulation and tissues.²⁰

Rural areas: Towns and municipalities outside of the commuting zone of large urban centers.

Standard population: This population provides the age distribution used as weights to create age-standardized statistics.²¹



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