Cancer System Quality Index 2024: Melanoma

Technical Supplement: Methods and Data Tables

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CQCO Cancer Quality Council of Ontario

Ontario Health

Preface

This document is a technical supplement to the Cancer System Quality Index (CSQI) 2024: Melanoma. It contains both methods for the analyses in the CSQI 2024 and the data for the graphs. The chapters and sections in this report are sequenced in the same order they appear in the report. The number of each data table matches that of the graph or table it corresponds to in CSQI 2024.

Efforts have been made to make this document as gender inclusive as possible. Where historical data sources, such as the Registered Persons Database, contain data only for some genders, we report on those genders as they are in the source data.

Inquiries about the CSQI 2024, including the methodology, may be directed to cqco@ontariohealth.ca.

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Section A: Methods

Perspectives from Patients, Care Partners, and Providers

Table 1. Sample of patients and care partners interviewed

Sample characteristic	Descriptor	Number of interviewees
Melanoma type	Nodular melanoma	6
	Acral lentiginous melanoma	3
	Uveal melanoma	2
	Unspecified melanoma	5
Age	30–39	2
	40–49	2
	50–59	6
	60–69	6
	70+	1
Gender	Female	14
	Male	3
Race	White	17
OH Region	North West	1
	Toronto	1
	Central	3
	East	6
	West	6
Total	Patients	16
	Care partner	1

Table 2. Sample of providers interviewed

Sample Characteristic	Descriptor	Number of interviewees
Profession	Medical oncologist	6
	Registered nurse	4
	Family physician	3
	Dermatologist	2
	Nurse practitioner	2
	General surgeon	1
	Surgical oncologist	1
	Administrator	1
OH Region	Toronto	1
	North West	2
	West	2
	East	4
	Central	11
Total	Providers	20

First Nations

The following datasets and methods were used to develop statistics about cancer in First Nations people:

All data reported in CSQI 2024 is from: Chiefs of Ontario, Cancer Care Ontario, and Institute for Clinical Evaluative Sciences (ICES). Cancer in First Nations People in Ontario: Incidence, Mortality, Survival and Prevalence. Toronto, 2017.

Individuals were classified as 'First Nations' if they were registered under the Indian Act and lived in the province of Ontario between 1991 and 2010. All other persons living in the province of Ontario between 1991 and 2010 were classified as 'others.'

The report used data from the Indian Registration System (IRS), Registered Persons Database (RPDP), and Ontario Cancer Registry (OCR). The IRS file was linked to the RPDB file at Clinical Evaluative Sciences (ICES). to reveal a group of people representing First Nations people in Ontario. Then, the file of First Nations people living in Ontario was linked to an OCR file at ICES to reveal a group of people representing First Nations people in Ontario with a diagnosis of cancer in 1991–2010. Finally, two anonymous files were sent from ICES to CCO for analysis of cancer rates in First Nations people, enabling CCO to develop the statistics about cancer in First Nations people presented in this report.

- **File 1:** Anonymous file of First Nations people in Ontario to form the population.
- **File 2:** Anonymous file of First Nations people in Ontario with a diagnosis of cancer in 1991 – 2010 for information on the number of cancers and cancer deaths

Prevalence of melanoma in First Nations people in Ontario as of January 1, 2011, all ages, both sexes combined, by time since diagnosis

Description

- **Prevalence Date: January 1, 2011**
- **Statistic: Crude Prevalence Percents**
- **Duration: 10 Years**
- Display By: Time Prior to Prevalence Date
- Discrete Intervals (Total, <=23, >23-59, >59-119, >119 Months) – First cancer per interval
- **Data Selection:**
    - **Inclusion: Malignant Behavior, Known Age**
    - **Exclude All: Death certificate and autopsy only cases.**
    - Multiple Primary: Select All Tumors Matching Selection Criteria/One Tumor Per Statistic

Time Frame

- January 1, 2011, 10-Year Limited Duration Prevalence.
- Populations were estimated by averaging 2010 and 2011 populations.

Data Sources

- Database: Ontario First Nations Cancer Prevalence File, 1991-2010, created 2 Mar 2017
- Data: Cancer Care Ontario – Ontario Cancer Incidence File, incl. First Nations flag, 1991-2010 (May 2016).
- Population Source: Statistics Canada estimates 1971-2014 and Ontario Ministry of Finance projects (Fall 2014). Indian Registry System. Indigenous and Northern Affairs Canada. Ontario First Nations including those registered with non-Ontario bands (May 2016).
- Software: Surveillance Research Program, National Cancer Institute SEER*Stat software (seer.cancer.gov/seerstat)

Surveillance Indicators

Melanoma Data Methodology

Description

- **Melanoma among people:** The Ontario Cancer Registry (OCR) was used to identify new diagnoses (incident cases) of melanoma using the third edition of the International Classification of Diseases for Oncology (ICD-O-3 site 'C44' with histology codes 8720-8790) among people in Ontario. The data in this report were extracted in December 2022 (incidence, survival, prevalence) and March 2023 (mortality).
- **Population data:** In this report, population-related data is from Statistics Canada. These data include the Ontario population data used in denominators for incidence, mortality, and prevalence rates for years up to 2020. The 2011 Canadian Standard Population was used to age-standardize these rates. For survival, these data include Ontario life tables for survival among the general population.

Time Frame

- The diagnosis years included varied according to the indicator.
- Incidence: diagnoses among people from 2016 to 2020.
- Mortality: deaths due to melanoma from 2016 to 2020.
- Prevalence: diagnoses among people up to 10 years prior to the years reported between 2016 and 2020 who were alive as of January 1 of the subsequent year. For example, for the 2020 prevalence rate, diagnoses among people from 2010 to 2019 who were alive as of January 1, 2020.
- Survival: The period from 2006 to 2010 includes people diagnosed during these years and followed up to 5 years (latest possible date of December 31, 2015) after their diagnosis date (cohort method). The period from 2016 to 2020 includes people diagnosed in these years and up to five years prior to January 1, 2016 (earliest possible date of January 1, 2011) and alive as of the start of 2016 (period method).

Inclusion Criteria

- Malignant melanoma
- Resident of Ontario
- Survival includes people aged 15 and 99 years at diagnosis.
- For survival and prevalence, cases of melanoma that meet the International Agency for Research on Cancer/International Association of Cancer Registries (IARC/IACR) rules for multiple primaries were used since these indicators spanned the year (2010) when the Ontario Cancer Registry changed rules for multiple primaries.

Exclusion Criteria

- Unknown age at diagnosis
- For survival and prevalence only, people who were diagnosed at death.

Data Sources

- Ontario Cancer Registry (OCR)
- Statistics Canada Population estimates on July 1 by age and gender (Table 17-10-0005-01 based on 2016 Census population estimates released July 1, 2022)
- Statistics Canada 2011 Canadian Standard Population with 5-year age groups (Table 3207_D12_V4)
- Statistics Canada 3-year complete life tables for Ontario up to 2018/2020 [January 24, 2022 release]

Melanoma Incidence in Ontario

Calculation

- Rates were calculated using SEER*Stat software (version 8.4.0.1).
- Incidence rates are the number of new cases of melanoma per 100,000 people in a population during a specific period. Rates presented by sex are per 100,000 males or per 100,000 females in the population during the specified period, and similarly using the populations by age group for age-specific rates.
- Age-standardized incidence rates were standardized using 5-year age groups with the 2011 Canadian population as the standard population.

Data Sources

- Ontario Cancer Registry (December 2022), Ontario Health (Cancer Care Ontario)
- Population data:
    - Statistics Canada Population estimates on July 1 by age and gender (Table 17-10-0005-01 based on 2016 Census population estimates released July 1, 2022)
    - Statistics Canada 2011 Canadian Standard Population with 5-year age groups (Table 3207_D12_V4)

Considerations

- Observed incidence counts and rates were based on the National Cancer Institute's Surveillance, Epidemiology and End Results (NCI SEER) program standards for counting multiple primary cancers.

Melanoma Mortality in Ontario

Calculation

- Rates were calculated using SEER*Stat software (version 8.4.0.1).
- Mortality rates are the number of melanoma-caused deaths per 100,000 people in a population during a specific period. Rates presented by sex are per 100,000 males or per 100,000 females in the population during the specified period, and similarly using the populations by age group for age-specific rates.
- Age-standardized mortality rates were standardized using 5-year age groups with the 2011 Canadian population as the standard population.
- Canadian age-standardized mortality rate 95% Confidence Intervals were not provided in the literature and were estimated:
  1) Calculated age-specific mortality rates (using the 2018 age-specific for deaths from melanoma and the 2018 Canadian population estimates by age group)
  2) Weighted the age-specific rates using the 2011 Canadian Standard Population
  3) Estimated the variance using the Poisson approximation to calculate the 95% CIs.

Data Sources

- Ontario Cancer Registry (February 2023), Ontario Health (Cancer Care Ontario)
- Population data:
  - Statistics Canada Population estimates on July 1 by age and gender (Table 17-10-0005-01 based on 2016 Census population estimates released July 1, 2022)
  - Statistics Canada 2011 Canadian Standard Population with 5-year age groups (Table 3207_D12_V4)

Considerations

- Cause-specific mortality

10-year Melanoma Prevalence Proportion in Ontario

Calculation

- Prevalence analyses were performed using SEER*Stat software (version 8.4.0.1).
- 10-year limited duration prevalence was calculated as the number of Ontarians diagnosed with melanoma cancer within the previous ten years who were still alive on an index date.
- The 10-year prevalence proportion per 100,000 was calculated as the number of people alive with a past melanoma cancer diagnosis for every 100,000 people in the general population as of the index date.
- A person diagnosed with more than one type of cancer (e.g., melanoma and colorectal cancer) in that ten-year period will be included in the count for each melanoma cancer diagnosed. If a person is diagnosed with more than one of the same cancers (e.g., a person with two colorectal cancers), only one cancer will be included in the prevalence estimate.

Data Sources

- Ontario Cancer Registry (December 2022), Ontario Health (Cancer Care Ontario)
- Population data:
    - Statistics Canada Population estimates on July 1 by age and gender (Table 17-10-0005-01 based on 2016 Census population estimates released July 1, 2022)

Considerations

- Prevalence describes the number of people or proportion of a population diagnosed with cancer who are still alive at a given time. It includes those diagnosed within a specific period (such as within the past 10 years), including those who have been recently diagnosed. Prevalence depends on both incidence and survival following diagnosis: increasing incidence and increasing survival can contribute to increasing prevalence.
- Prevalence based on incident cases using International Agency for Research on Cancer/International Association of Cancer Registries rules for counting multiple primaries.

Melanoma Survival in Ontario

Calculation

- 5-year observed survival is the percentage of people with melanoma cancer who are alive at the end of 5 years out of the total number of people with melanoma cancer at the start of 5 years.
- 5-year relative survival ratio is a ratio of the proportion of people alive (all causes of death) at least 5 years after melanoma diagnosis to the proportion of expected survivors in a comparable cohort of cancer-free individuals.
- For cases diagnosed in the most recent 5-year period, where 5 years of follow-up data are not available for all cases, 5-year observed and relative survival are estimated using the "period method." The period method observes (in the most recent available time period) the survival of patients diagnosed in different calendar years to project the survival expected for recently diagnosed cases.
- Relative survival ratios are age-standardized by first calculating survival for 5 age groups (15 to 44, 45 to 54, 55 to 64, 65 to 74, 75 to 99). The age-specific survival estimates are then weighted using the International Cancer Survival Standard (ICSS) 2 weights.

Data Sources

- Ontario Cancer Registry (December 2022), Ontario Health (Cancer Care Ontario)
- Statistics Canada 3-year complete life tables for Ontario up to 2018/2020 [January 24, 2022 release]

Considerations

- Observed and relative survival do not consider the cause of death and thus provides an estimate of surviving all causes of death.

Melanoma Indicators

Melanoma Cohort Descriptive Analysis

Calculation

- The Ontario Cancer Registry (OCR) was used to identify incident malignant cutaneous melanoma cases diagnosed between January 1, 2018, to December 31, 2022 (ICD-O-3 topography of 'C44' and histologies 8720-8790) in the province of Ontario. The first diagnosis of melanoma within the study period was used for analyses. Those with a diagnosis of melanoma in the 5-years prior to the index melanoma, and those with a diagnosis of melanoma in the 1-year following the index melanoma were excluded due to the possibility of recurrence, or mis-assignment of treatment, respectively.

Unit

- Proportion

Data Sources

- Ontario Cancer Registry (OCR)
- Registered Persons Database (RPDB)

Time Frame

- CY 2018-2022

Geographic Scale

- By province

Stratifications

- By calendar year of diagnosis
- The following stratifications were performed:
    - Age group (18-29, 30-49, 50-69, 70-89, 90+)
    - Sex
    - Urban and rural/remote area of residence (patient residence)
    - Ontario Marginalization Index (ON-Marg) dimensions: 1) Material Resources

Description

- ***Inclusions:***
  - Patients with an incident, malignant cutaneous melanoma cancer case (ICD-O-3 topography of 'C44' and histologies 8720-8790) in the OCR diagnosed between January 1, 2018, and December 31, 2022.
- ***Exclusions****:*
  - Invalid health card number (HCN)
  - Patients <18 at time of melanoma diagnosis
  - Non-Ontario resident at diagnosis or missing postal code.
  - Patients where melanoma was diagnosed at death.
  - Patients diagnosed with melanoma in the 5-years preceding their index melanoma diagnosis.
  - Patients with a melanoma diagnosis in the 1-year following their index melanoma diagnosis.
  - Patients where their melanoma was not microscopically confirmed.

Considerations

- None

Data Availability and Limitations

- We do not have 1 full year of follow-up for patients diagnosed in the latter part of 2022. Thus, we may not exclude all those with a subsequent melanoma diagnosis in the 1-year following their index diagnosis.

Equity-based Analyses

The equity-based analyses in this report include stratifications by age group, sex, rurality, and by levels of marginalization based on the Ontario Marginalization Index (ON-MARG).

Urban and Rural/Remote Area of Residence (patient residence)

Description

- Respondents living within any Census Metropolitan Area (CMA) or Census Agglomeration (CA) were considered "urban residents"– and those living outside of any CMA or CA were classified as "rural/remote residents"

Ontario Marginalization Index (ON-Marg) dimensions: Material Resources

- ON-MARG is an area-based index that aims to show differences in marginalization between geographic areas (Matheson FI (Unity Health Toronto), Moloney G (Unity Health Toronto), van Ingen T (Public Health Ontario). 2021 Ontario marginalization index: user guide. Toronto, ON: St. Michael's Hospital (Unity Health Toronto); 2023. Joint publication with Public Health Ontario).
- For CSQI 2024, we report the material resources dimension of ON-MARG, which refers to the ability of individuals to access and attain basic material needs relating to housing, food, clothing, and education. Census dissemination areas were assigned to quintiles of material resource marginalization, with higher quintiles representing less material resources.

Percentage of Patients Meeting a 62-Day Wait Time from Melanoma Diagnosis to First Treatment

Calculation

- Numerator: Number of patients who started treatment within 62 days of their melanoma diagnosis
- Denominator Number of patients in the melanoma CSQI cohort who were diagnosed in the calendar year and received treatment within 1-year following their melanoma diagnosis.
- For each calendar year (based on the date of diagnosis), divide the numerator by the denominator and multiply the result by 100.
- Result: Percentage of melanoma patients who received treatment within 62 days of diagnosis

Unit

- Proportion

Data Sources

- Ontario Cancer Registry (OCR)
- Ontario Health Insurance Plan (OHIP)
- Canadian Institute for Health Information (CIHI) – Discharge Abstract Database (DAD)
- Canadian Institute for Health Information (CIHI) – National Ambulatory Care Reporting System (NACRS)
- Activity Level Reporting (ALR)
- Ontario Drug Benefit (ODB)
- New Drug Funding Program (NDFP)

Time Frame

- CY 2018-2022

Geographic Scale

- By province

Stratifications

- By calendar year of diagnosis
- The following stratifications were performed:
    - Age group (18-29, 30-49, 50-69, 70-89, 90+)
    - Sex
    - Urban and rural/remote area of residence (patient residence)
    - Ontario Marginalization Index (ON-Marg) dimensions: 1) Material Resources

Denominator Description

- Number of patients in the CSQI melanoma cohort who received melanoma treatment in the 1-year following their melanoma diagnosis.
- ***Inclusions***:
  - Patients with an incident, malignant cutaneous melanoma cancer case (ICD-O-3 topography of 'C44' and histologies 8720-8790) in the OCR diagnosed between January 1, 2018, and December 31, 2022 (see methodology for CSQI melanoma cohort development for full inclusion/exclusion criteria).
- ***Exclusions****:*
  - Patients with no evidence of treatment within 1-year of their melanoma diagnosis
- *Technical steps:*
  1) Using OCR, OHIP, DAD, NACRS, ALR, ODB, and NDFP, captured all records for all patients in the CSQI melanoma cohort 3 months before melanoma diagnosis to 1 year after melanoma diagnosis.
  2) Surgeries were included if the procedure occurred 14 days prior to- to 365 days following the melanoma diagnosis date (methods used to identify melanoma surgery are provided in **Appendix A**). Records were excluded if there was any indication that the procedure was abandoned or cancelled.
  3) Systemic therapy visits were included if the visit occurred within 365 days of the melanoma diagnosis date (list of melanoma-specific drugs, as well as systemic therapy codes, and the method to identify systemic therapy from each database can be found in **Appendix B**)
  4) Radiation therapy visits were included if the visit occurred within 365 days of the melanoma diagnosis date (method to identify radiation treatment from ALR can be found in **Appendix C**).
  5) The first occurrence of a treatment marked the start of treatment.

Numerator Description

- Number of patients in the denominator who received either surgery, systemic therapy, or radiation therapy within 62 days of melanoma diagnosis.

Considerations

- Systemic therapy includes only melanoma-specific drugs, where applicable.
- Systemic therapy drugs were excluded if they were noted to be part of a study (where applicable).
- Systemic treatment activity in DAD or NACRS included patients receiving inpatient/outpatient total body pharmacotherapy from DAD using antineoplastic and immunomodulating agents (subset of the procedure code = "1ZZ35" – refer to **Table B2** in **Appendix B** for the codes included).

Data Availability and Limitations

- Surgery
  - A patient may have undergone a procedure other than those listed in **Appendix A** (although these procedures are considered 'inadequate' treatments).
- Systemic therapy
  - In ALR, for oral medications or treatments involving injection depots, this indicator would capture the date that the prescription is entered into computerized provider order entry (CPOE). It does not capture dispensing and compliance.
  - In OHIP, DAD, and NACRS, we do not know the drugs that were dispensed. It is possible that the procedure/intervention code was not for a melanoma-specific treatment. To mitigate this, we excluded anyone who had a non-melanoma cancer diagnosed within the treatment window (1-year), excluded patient records in a database for those who had a systemic therapy record in that database in the 3-month period prior to the melanoma diagnosis, and limited records in OHIP to those billed by a medical oncologist.
- Radiation therapy
  - It is possible that the radiation therapy that was captured was not for melanoma. To mitigate this, we excluded anyone who had a non-melanoma cancer diagnosed within the treatment window (1-year) and excluded patient records for those who had radiation therapy in the 3-month period prior to the melanoma diagnosis.
- We do not have full 1-year follow-up for all patients diagnosed in 2022. As such, some patients with a prolonged time-to-first treatment may be excluded from the denominator.

Patients Who Received Planned Adjuvant Systemic Therapy Within 60 Days After Melanoma Surgery

Calculation

- Numerator: Number of patients who started planned adjuvant systemic therapy within 60 days of their first melanoma surgery date
- Denominator: Number of patients in the melanoma CSQI cohort who had a record of both melanoma surgery and planned adjuvant systemic therapy (up to 6-months after surgery)
- For each calendar year (based on the date of diagnosis), divide the numerator by the denominator and multiply the result by 100.
- Result: Percentage of melanoma patients who received planned systemic therapy within 60 days of melanoma surgery

Unit

- Proportion

Data Sources

- Ontario Cancer Registry (OCR)
- Ontario Health Insurance Plan (OHIP)
- Canadian Institute for Health Information (CIHI) – Discharge Abstract Database (DAD)
- Canadian Institute for Health Information (CIHI) – National Ambulatory Care Reporting System (NACRS)
- Activity Level Reporting (ALR)
- Ontario Drug Benefit (ODB)
- New Drug Funding Program (NDFP)

Time Frame

- CY 2018-2022

Geographic Scale

- By province

Stratifications

- By calendar year of diagnosis
- The following stratifications were performed:
    - Age group (18-29, 30-49, 50-69, 70-89, 90+)
    - Sex
    - Urban and rural/remote area of residence (patient residence)
    - Ontario Marginalization Index (ON-Marg) dimensions: 1) Material Resources

Denominator Description

- Number of patients in the CSQI melanoma cohort who received both melanoma surgery and planned adjuvant systemic therapy in the 1-year following their melanoma diagnosis (start of adjuvant systemic therapy is restricted to a maximum of 6-months after surgery).
- ***Inclusions:***
  - Patients with an incident, malignant cutaneous melanoma cancer case (ICD-O-3 topography of 'C44' and histologies 8720-8790) in the OCR diagnosed between January 1, 2018, and December 31, 2022 (see methodology for CSQI melanoma cohort development for full inclusion/exclusion criteria)
- ***Exclusions:***
  - Patients who we were unable to assign both a surgery date and a planned adjuvant systemic therapy date.
  - Patients who had a planned adjuvant systemic therapy record prior to their melanoma surgery
  - Patients where the planned adjuvant systemic therapy was longer than 6 months after first surgery date.
- *Technical Steps:*
  1) Using OCR, OHIP, DAD, NACRS, ALR, ODB, and NDFP, captured all records for all patients in the CSQI melanoma cohort 3 months before melanoma diagnosis to 365 days following melanoma diagnosis.
  2) Surgeries were included if the procedure occurred 14 days prior to- to 365 days following the melanoma diagnosis date (methods used to identify melanoma surgery are provided in **Appendix A**). Records were excluded if there was any indication that the procedure was abandoned or cancelled.
  3) Adjuvant systemic therapy visits were included if the visit occurred within 365 days of the melanoma diagnosis date (list of melanoma-specific adjuvant drugs, as well as systemic therapy codes, and the method to identify adjuvant systemic therapy from each database can be found in **Appendix B**)
  4) The first occurrence of a surgery was used to look forward for adjuvant systemic therapy, up to a maximum of 6 months.

Numerator Description

- Number of patients in the denominator who received planned adjuvant systemic therapy within 60 days of their first melanoma surgery.

Considerations

- Adjuvant systemic therapy includes only melanoma-specific adjuvant drugs, where applicable.
- Drugs were excluded if they were noted to be part of a study (where applicable).
- Systemic treatment activity in DAD or NACRS included patients receiving inpatient/outpatient total body pharmacotherapy from DAD using antineoplastic and immunomodulating agents (subset of the procedure code = "1ZZ35" – refer to **Table B2** in **Appendix B** for the codes included).

Data Availability and Limitations

- Surgery
  - A patient may have undergone a procedure other than those listed in Appendix A (although these procedures are considered 'inadequate' treatments).
- Systemic therapy
  - In ALR, for oral medications or treatments involving injection depots, this indicator would capture the date that the prescription is entered into computerized provider order entry (CPOE). It does not capture dispensing and compliance.
  - In OHIP, DAD, and NACRS, we do not know the drugs that were dispensed. It is possible that the procedure/intervention code was not for a melanoma-specific treatment. To mitigate this, we excluded anyone who had a non-melanoma cancer diagnosed within the treatment window (1-year), excluded patient records in a database for those who had a systemic therapy record in that database in the 3-month period prior to the melanoma diagnosis, and limited records in OHIP to those billed by a medical oncologist.
- We do not have full 1-year follow-up for all patients diagnosed in 2022. As such, some patients with a prolonged time-to- treatment may be excluded from the denominator.

Rate of Unplanned Emergency Department (ED) Visits after Melanoma Surgery

Description

- Percentage of melanoma cancer surgeries that were followed by an unplanned emergency department (ED) visit within 30 days of discharge after surgery.

Calculation

- Numerator: Number of melanoma patients with an unscheduled ED visit within 30 days of discharge after surgery
- Denominator: Number of patients in the melanoma CSQI cohort who had a record of melanoma surgery
- For each calendar year (based on the date of diagnosis), divide the numerator by the denominator and multiply the result by 100.
- Result: Percentage of melanoma patients who had an ED visit within 30 days of melanoma surgery

Unit

- Proportion

Data Sources

- Canadian Institute for Health Information (CIHI) – Discharge Abstracts Database (DAD)
- Canadian Institute for Health Information (CIHI) – National Ambulatory Care Reporting System (NACRS)
- Ontario Health Insurance Plan (OHIP)
- Ontario Cancer Registry (OCR)

Time Frame

- CY 2018-2022

Geographic Scale

- By province

Stratifications

- By calendar year of diagnosis
- The following stratifications were performed:
    - Age group (30-49, 50-69, 70-89)
    - Sex
    - Urban and rural/remote area of residence (patient residence)

Denominator Description

- Number of patients in the CSQI melanoma cohort who received melanoma surgery within 365 days of diagnosis.
- ***Inclusion Criteria***
  - Patients with an incident, malignant cutaneous melanoma cancer case (ICD-O-3 topography of 'C44' and histologies 8720-8790) in the OCR diagnosed between January 1, 2018, and December 31, 2022 (see methodology for CSQI melanoma cohort development for full inclusion/exclusion criteria)
  - Surgeries were included if the procedure occurred within 14 days before and 365 days after the diagnosis date, inclusive (methods used to identify melanoma surgery are provided in **Appendix A**).
- ***Exclusion Criteria***
  - Patients in the CSQI melanoma cohort who did not have a record of melanoma surgery in the 365 days following their melanoma diagnosis (see **Appendix A** for definition of melanoma surgery).
  - Interventions flagged as cancelled, abandoned and out of hospital.

Numerator Description

- Number of patients in the denominator who had an unscheduled emergency department visit within 30 days of discharge after their melanoma surgery.
- **ED Visit** was defined as a record in NACRs where:
  - The registration date was within 1-30 days after the discharge date (if surgery was from DAD), registration date (if surgery found in NACRS), or service date (if surgery was from OHIP) for a melanoma surgery, inclusive.
  - Visit Management Information System (MIS) functional centre was one of the following: Emergency, General Emergency, Observation, Trauma, Urgent Care, and Emergency Mental Health Service (i.e., MIS functional centre code starts with 7*310).
  - Visit was not scheduled (ED_visit_ind = 1)
  - Visit disposition did not indicate that the patient had left the ED without being seen or triaged (i.e., Visit_disposition not equal to '02')

Considerations

- Only the first surgery was used in the analysis.

Data Availability and Limitations

- Only surgical procedures that occurred within 14 days before and 365 days after the diagnosis date were used for this indicator.

General Symptoms (ESAS-r+) Screening

Description
The percentage of cancer patients who had a visit coded for melanoma of the skin in a given month and were screened with the Edmonton Symptom Assessment System-revised (ESAS-r) or ESAS-r+ in the same month.

Unit
Proportion

Data Sources
- Activity Level Reporting (ALR)
- Symptom Management Database

Time Frame
2018-2022 – reported by month.

Denominator Description
- Number of patients who had a visit coded with clinical practice subgroup "Melanoma of the Skin" in each month of the reporting period.
- The T2PS metric from the ALR was used to identify visits and the clinical practice subgroup "Melanoma of the Skin" was used to include only visits for patients with melanoma of the skin to align with CSQI 2024.
    - T2PS is defined as a unique ALR case with a clinic visit for radiation, systemic, surgery, preventative oncology, or palliative/psychosocial oncology, or radiation planning/treatment visits, antineoplastic systemic or supportive/adjunctive therapy visits in the reporting period. Cases are counted only once per reporting period, regardless of the number of programs in which they are seen.
- ***Inclusion Criteria***

Patients who had a melanoma-related hospital visit, either in person or virtual, at a hospital that submits symptom screening data to OH.

- ***Exclusion Criteria***
    - Missing, invalid, or out of province health card numbers
    - Group visits (i.e., patients who only received a group visit in the reporting period): group visits were defined as face-to-face visits in a group setting at the hospital (VISIT_MODE_KEY = 4) or virtual visits conducted in a group (VISIT_MODE_KEY = 10)

Numerator Description
- Of those in the denominator, those who were screened at least once with ESAS-r or ESAS-r+ in the same month (at a kiosk or via the home channel).

Data Availability and Limitations

- Most facilities use electronic platforms (e.g., kiosks, tablets) for patients to report on their symptoms. Other facilities rely on paper forms. Paper forms require data entry and may not be as accurate as direct, electronic reporting.

Number of Melanoma Survivors by Age Group and Sex

Calculation

- The Ontario Cancer Registry (OCR) was used to identify incident cases of malignant cutaneous melanoma diagnosed in the province of Ontario between January 1, 1964, and December 31, 2022. For each calendar year of interest (2018-2022), survivors were included if they had a diagnosis before the end of the calendar year and were alive as of the end of the calendar year (for instance, for the 2018 cohort, survivors are those who were diagnosed with melanoma on or before December 31, 2018, and alive as of December 31, 2018).

Unit

- Proportion

Data Sources

- Ontario Cancer Registry (OCR)
- Registered Persons Database (RPDB)

Time Frame

- CY 2018-2022

Geographic Scale

- By province

Stratifications

- By calendar year of diagnosis
- The following stratifications were performed:
    - Age group (18-29, 30-49, 50-69, 70-89, 90+)
    - Sex
    - Urban and rural/remote area of residence (patient residence)
    - Ontario Marginalization Index (ON-Marg) dimensions: 1) Material Resources

Description

- ***Inclusions:***
    - Patients with a malignant cutaneous melanoma cancer (ICD-O-3 topography of 'C44' and histologies 8720-8790) in the OCR diagnosed between January 1, 1964, and December 31, 2022

- ***Exclusions:***
    - Invalid health card number (HCN)
    - Patients <18 at time of melanoma diagnosis
    - Non-Ontario resident at diagnosis or missing postal code.
    - Patients where melanoma was diagnosed at death.
    - Patients where their melanoma was not microscopically confirmed.
    - Patients who died before December 31 of the calendar year of interest

Considerations

- None

Data Availability and Limitations

- None

Percentage of Patients Who See a Dermatologist or a Family Doctor with Special Training in Skin 6-18 Months After Diagnosis of Melanoma to Assess for Other New Primary Skin Malignancies

Calculation

- Numerator: Number of patients who saw a dermatologist or family physician specializing in skin 6-18 months after melanoma diagnosis
- Denominator: Number of patients in the melanoma CSQI cohort
- For each calendar year (based on the date of diagnosis), divide the numerator by the denominator and multiply the result by 100.
- Result: Percentage of melanoma patients who saw a dermatologist or family physician specializing in skin in the 6-18 months after melanoma diagnosis

Unit

- Proportion

Data Sources

- Ontario Cancer Registry (OCR)
- Ontario Health Insurance Plan (OHIP)

Time Frame

- CY 2018-2022

Geographic Scale

- By province

Stratifications

- By calendar year of diagnosis
- The following stratifications were performed:
    - Age group (18-29, 30-49, 50-69, 70-89, 90+)
    - Sex
    - Urban and rural/remote area of residence (patient residence)
    - Ontario Marginalization Index (ON-Marg) dimensions: 1) Material Resources

Denominator Description

- Patients in the 2024 CSQI melanoma cohort.
- ***Inclusions:***
    - Patients with an incident, malignant cutaneous melanoma cancer case (ICD-O-3 topography of 'C44' and histologies 8720-8790) in the OCR diagnosed between January 1, 2018, and December 31, 2022 (see methodology for CSQI melanoma cohort development for full inclusion/exclusion criteria)
- ***Exclusions*:**
    - Patients without 18 full months of follow-up from diagnosis (due to either death or diagnosis occurring 18 months prior to Dec 31, 2023)

Numerator Description

- Number of patients in the denominator who saw a dermatologist or family physician with specialized skin training in the 6-months to 18-months following their melanoma diagnosis.
- *Technical Steps:*
    1) Using OCR and OHIP, captured all OHIP records for all patients in the CSQI melanoma cohort from melanoma diagnosis to 18 months after melanoma diagnosis.
    2) A visit with a dermatologist occurred when the health care provider attached to the OHIP visit held a dermatologist specialty.
    3) Family physicians with specialized skin training were identified (see **Appendix D** for methodology to create this physician census). OHIP records were kept if the physician billing number matched the billing numbers in the census, and if one of the following skin-related diagnosis codes were attached to the OHIP record:
        a. 172: Malignant Neoplasms: Melanoma of skin
        b. 173: Malignant Neoplasms: Other skin malignancies
        c. 216: Benign Neoplasms: Skin
        d. 232: Carcinoma in Situ: Skin
        e. 701: Other Diseases of Skin and Subcutaneous Tissue: Hyperkeratosis, scleroderma, keloid
        f. 709: Other Diseases of Skin and Subcutaneous Tissue: Other disorders of skin and subcutaneous tissue

Considerations

- The family physician specializing in skin census was created empirically, using OHIP billing data from patients in the CSQI melanoma cohort. It is possible that not all physicians included have specialized skin training, or that some physicians with low volumes are missing from the census.
- A visit with a dermatologist or family physician specializing in skin may not be related to the melanoma, but some other skin condition. We do not know the purpose of the visit.

Data Availability and Limitations

- We do not have full 18 months of follow-up for all patients diagnosed in 2022. Only patients with full 18 months of follow-up were included in the 2022 cohort.

Percentage of Melanoma Patients who had Systemic Therapy in the Last 30 Days of Life

Description

- Percentage of cancer patients who were diagnosed with melanoma within 5 years of death and received melanoma-specific systemic treatment in the last 30 days of life.

Data Sources

- Ontario Cancer Registry (OCR)
- Canadian Institute for Health Information (CIHI) – Discharge Abstract Database (DAD)
- Canadian Institute for Health Information (CIHI) – National Ambulatory Care Reporting System (NACRS)
- Registered Persons Database (RPDB)
- Activity Level Reporting (ALR)
- Ontario Drug Benefit (ODB)
- Ontario Health Insurance Plan (OHIP)
- New Drug Funding Program (NDFP)

Time Frame

- 2018-2022

Geographic Scale

- By province

Stratifications

- By year of death (calendar year)

Inclusion Criteria

- Patients who died within the reporting timeframe
- Patients with systemic clinic (C1S or C2S) or treatment (S25) activity in the ALR within 365 days of their death date
- Patients with an incident, malignant melanoma cancer case (ICD-O-3 topography of 'C44' and histologies 8720-8790) in the OCR diagnosed within 5 years of their death date (e.g., January 1, 2013, or later for patients who died in 2018)

Exclusion Criteria

- Deaths due to suicide or medical assistance in dying (MAID)
- Patients who died outside Ontario
- Patients <18 at time of cancer diagnosis
- Missing or invalid health card number (HCN)
- Patients with acute leukemia (e.g., Acute Lymphocytic Leukemia, Acute Myeloid Leukemia. Acute Monocytic Leukemia, Other Acute Leukemia) in the last year of life were excluded as chemotherapy is commonly used to control symptoms for this patient population.
    - **Numerator only:**
        - Systemic treatments with non-melanoma specific drug regimens or drugs

Denominator Description

- Number of patients who died **and** were diagnosed with melanoma in the past 5 years **and** had systemic clinic or treatment activity in their last year of life.

Numerator Description

- Number of patients in the denominator who received melanoma-specific systemic treatment in the last 30 days prior to death.
- See **Appendix E** for systemic treatment definitions by database.
- See **Appendix E** for a list of regimens and drugs considered melanoma related.

Considerations

- Systemic therapy includes chemotherapy, targeted therapy, and immunotherapy.
- Systemic treatment activity in DAD or NACRS included only patients receiving inpatient/outpatient total body pharmacotherapy using antineoplastic and immunomodulating agents (subset of the procedure code = "1ZZ35" – refer to **Table E1** and **Table E2** in **Appendix E** for the codes included).
- The objective for this indicator was to determine the proportion of patients (ever diagnosed with melanoma) who were inappropriately receiving systemic therapy in the last 30 days of life. Therefore, the cause of death was not an important factor.
- Patients who died by suicide or MAID were excluded as the follow-up period cannot be accurately set to gauge that the systemic treatment was given at the end of life.

Data Availability and Limitations

- There is a 6-month delay in the availability of date of death data. Cause of death may not be cancer related; information on cause of death is lagged by at least 2 years.
- In ALR, for oral medications or treatments involving injection depots, this indicator would capture the date that the prescription is entered into computerized provider order entry (CPOE). It does not capture dispensing and compliance.
- Dose/quantity that is received or expected duration of treatment was not considered. As such, it is possible that oral treatments or injections that overlap with the treatment window (i.e., last 30 days of life) were not currently captured and we may underestimate systemic treatments received through these modalities.

Percentage of Melanoma Patients That Had Two or More Acute Care Admissions in the Last 30 Days of Life

Calculation

- Numerator: Number of patients who had two or more acute care admissions in their last 30 days of life
- Denominator: Number of patients who died and were diagnosed with melanoma in the past 5 years and were not in an acute care hospital for their last 30 days of life
- For each calendar year (based on the date of diagnosis), divide the numerator by the denominator and multiply the result by 100:
- Result: Percentage of patients diagnosed with melanoma within 5 years before death who had two or more acute care admissions in their last 30 days of life

Unit

Proportion

Data Sources

- Ontario Cancer Registry (OCR)
- Canadian Institute for Health Information (CIHI) – Discharge Abstract Database (DAD)
- Registered Persons Database (RPDB)

Time Frame

- CY 2018-2022

Geographic Scale

- By province

Stratifications

- By calendar year of death

Denominator Description

- Number of patients who died who were not in an acute care hospital for their last 30 days of life and were diagnosed with melanoma in the past 5 years.
- ***Inclusions***:
    - Patients with an incident, malignant melanoma cancer case (ICD-O-3 topography of 'C44' and histologies 8720-8790) in the OCR diagnosed within 5 years of their death date (e.g., January 1, 2013, or later for patients who died in 2018)

***Exclusions*:**

- Patients who were hospitalized in an acute care facility for the last 30 days of life.
- If the sum of all episodes of care in acute care facilities during the last 30 days of life equals or exceeds 30 days, the patient is considered hospitalized for the duration of interest and is excluded.
- Sudden death, and death by suicide
- Patients <18 at time of cancer diagnosis
- Invalid health card number (HCN)

- *Technical Steps:*
  1) Using the RPDB, find all records with a death date in the time period required.
  2) Extract all incident, malignant melanoma cancer cases (ICD-O-3 topography of 'C44' and histologies 8720-8790) in the OCR (from January 1, 1964, onwards). Determine the most recent melanoma case for each patient. Link to the decedent cohort using the unique patient identifier and identify patients who were diagnosed with melanoma within 5 years of their death.
  3) Exclude sudden death and suicide, and those who were hospitalized in an acute care facility for their last 30 days of life.

Numerator Description

- Number of patients in the denominator who had two or more acute care admissions in their last 30 days of life.

Considerations

- None

Data Availability and Limitations

- None

Section B. Additional Methods

Appendix A: Identifying Melanoma Surgery

The surgery definition in Appendix A applies to the following indicators:

- **Percentage of Patients Meeting a 62-Day Wait Time from Melanoma Diagnosis to First Treatment**
- **Percentage of Patients who Received Adjuvant Systemic Therapy Within 60 Days After Melanoma Surgery**
- **Unplanned Emergency Department (ED) Visits 30 Days After Melanoma Surgery**

1. Take the first occurrence of a code in **Table A1.1 and A1.2** or **Table A2.1 and A2.2** as the **diagnostic biopsy**. Look for codes in the 2 weeks preceding the OCR diagnosis date, up to 2 weeks after OCR diagnosis date. If there is no biopsy code in the +/- 2 weeks around the OCR diagnosis date, then biopsy = 'no'
2. Take the next occurrence of a code in **Table A2.1 and A2.2** or **Table A3.1 and A3.2** as the **surgery.**
    a. If there is no surgery code within 6 months of the initial biopsy code, and the initial biopsy code falls in both the 'biopsy' and the 'surgery' definition (**Tables A2.1 and A2.2**), then the 'initial biopsy' was also the surgery.
    b. If there is no surgery code within 6 months of the initial biopsy code, and the initial biopsy code is not part of the surgery definition (**code is in Tables A1.1 and A1.2**), look an additional 6 months for surgery (for a total of 1-year post diagnosis). If there is no surgical record, then do not assign a surgery as a treatment.
3. Take the first instance of a surgical code as the 'start of surgical treatment.'

Table A1.1 Biopsy-specific OHIP Procedure codes

OHIP Procedure codes	
E172	EYE ORBIT-EXC.-BIOPSY-ANTERIOR ROUTE
E542	SKIN/SUBCUT TISSUE-INSERTION OF SUTURES OUTSIDE HOSP-ADD
Z113	INTEGUMENTARY SYST.BIOPSY(S)-ANY METHODSUTURES NOT USED
Z116	SURG.PROC SKIN-BIOPSY(S)ANY METHOD WHEN SUTURES USED
Z155	SKIN-INC.-BIOPSY EXTENSIVE/COMPLICATED/GEN.ANAES.-SOLE PROC.
Z309	NOSE-EXC.-BIOPSY-LOC. ANAES.
Z475	VULVA & INTROITUS-EXCISION-BIOPSY-GEN.ANAESTHETIC
Z477	VULVA & INTROITUS-EXCISION-BIOPSY-LOC.ANAESTHETIC
Z501	MOUTH-INC.-BIOPSY
Z503	LIPS-INC.-BIOPSY
Z544	ANUS-INC. BIOPSY
Z702	PENIS-EXC.-BIOPSY
Z722	VAGINA-EXC.-BIOPSY-LOCAL ANAESTHETIC-SOLE PROCEDURE
R160	PRE MALIGNANT LESIONS FACE SIMPLE EXCISION ONE LESION
R161	FACE OR NECK SIMPLE EXCISION TWO LESIONS
R162	FACE OR NECK SIMPLE EXCISION THREE OR MORE LESIONS
R163	PRE MALIGNANT LESIONS OTHER AREAS SIMPLE EXCISION ONE LESION
R164	OTHER AREAS SIMPLE EXCISION TWO LESIONS
R165	OTHER AREAS SIMPLE EXCISION THREE OR MORE LESIONS
R040	SKIN-EXC/CURET&DESSICAT./CRYOSURG. INCL.BIOPSY LOCAL.MALIG.-2
R041	SKIN-EXC/CURET&DESSICAT/CRYOSURG. INCL.BIOP.LOCAL MALIG3/MORE
R048	SKIN-EXC.-LOC.MALIG.INCL.BIOPSY-FACE/NECK-1 LESION.
R049	SKIN-EXC.-LOC.MALIG.INCL.BIOPSY-FACE/NECK-2 LESIONS
R050	SKIN-EXC.-LOC.MALIG.INCL.BIOPSY-FACE/NECK-3/MORE LESIONS.
R094	SKIN-EXC-SIMPLE-MALIG.LESION-OTHER AREA-INCL.BIOPSY-ONE.
Z122	SKIN-EXC.-GROUP 4-FACE/NECK-ONE LESION-LOC. ANAES.
Z123	SKIN-EXC.-GROUP 4-FACE/NECK-TWO LESIONS-LOC. ANAES.
Z124	SKIN-EXC.-GROUP 4-FACE/NECK-THREE OR MORE-LOC. ANAES.
Z125	SKIN-EXC.-GROUP 4-OTHER AREAS-ONE LESION-LOC. ANAES.
Z156	SKIN-EXC-SUT.-BENIGN LESIONS-SINGLE.
Z157	SKIN-EXC-SUT.-BENIGN LESIONS-SINGLE.
Z158	SKIN-EXC-SUT.-BENIGN LESIONS-THREE/MORE LESIONS.
Z162	SKIN-EXC-SUT.-NAEVUS-ONE.
Z163	SKIN-EXC-SUT.-NAEVUS-TWO.
Z164	SKIN-EXC-SUT.-NAEVUS-THREE/MORE.

Table A1.2 Biopsy-specific CCI Intervention codes

CCI Intervention codes	
2CX71	BIOPSY, EYELID USING INCISIONAL APPROACH
2DA71	BIOPSY, EXTERNAL EAR NEC USING INCISIONAL APPROACH
2EQ71	BIOPSY, SOFT TISSUE OF HEAD AND NECK
2SH71	BIOPSY, SOFT TISSUE OF THE BACK
2SZ71	BIOPSY, SOFT TISSUE OF THE CHEST AND ABDOMEN
2TX71	BIOPSY, SOFT TISSUE OF ARM
2VX71	BIOPSY, SOFT TISSUE OF LEG
2WV71	BIOPSY, SOFT TISSUE OF THE FOOT AND ANKLE
2YA71	BIOPSY, SCALP
2YB71	BIOPSY, SKIN OF FOREHEAD
2YC71	BIOPSY, SKIN OF EAR
2YD71	BIOPSY, SKIN OF NOSE
2YE71	BIOPSY, LIP
2YF71	BIOPSY, SKIN OF FACE
2YG71	BIOPSY, SKIN OF NECK
2YR71	BIOPSY, SKIN OF AXILLARY REGION
2YS71	BIOPSY, SKIN OF ABDOMEN AND TRUNK
2YT71	BIOPSY, SKIN OF ARM
2YU71	BIOPSY, SKIN OF HAND
2YV71	BIOPSY, SKIN OF LEG
2YW71	BIOPSY, SKIN OF FOOT
2YX71	BIOPSY, NAIL

Table A2.1 OHIP Procedure codes used to define both biopsy and surgery

OHIP Procedure codes	
E227	EYELIDS-WITH FREE POSTERIOR LAMELLAR GRAFT ADD TO E227
R002	SKIN-ADV. FLAPS-OTHER AREAS-DEFECT-2.1-5 CM.
R003	SKIN-ADV. FLAPS-OTHER AREAS-DEFECT-5.1-10 CM.
R004	SKIN-ADV. FLAPS-OTHER AREAS-DEFECT OVER 10 CM.
R005	SKIN-MYOCUTAN.FLAP-INCL.CLOS-STERNOMASTOID/TENSOR FASC. LATA
R011	SKIN-ADV.FLAPS-FACE/NECK/SCALP DEFECT 2.1CM-5CM
R012	SKIN-ADV.FLAPS-FACE/NECK/SCALP DEFECT 5.1CM-10CM.
R045	SKIN-ROTN/TRANS./Z PLASTY FACE/NECK/SCALP UP TO 2CM
R046	SKIN-ROTN/TRANS./Z PLASTY FACE/NECK/SCALP 2.1CM TO 5CM
R047	SKIN-ROTN/TRANS./Z PLASTY FACE/NECK/SCALP 5.1CM TO 10CM
R072	SKIN-FLAPS-ROT/TRANS/ZPLASTY-OTHER AREAS-LESS THAN 2CM DIAM.
R073	SKIN-FLAPS-ROT/TRANS/ZPLASTY-OTHER AREAS-5.1-10 CM.DIAM.
R074	SKIN-FLAPS/ROTATIONS/TRANSPOSIT/ ZPLASTY MORE THAN 10CM DIAM.
R075	SKIN-FLAPS-ROT/TRANS/ZPLASTY-OTHER AREAS-2.1-5 CM.DIAM.
R076	SKIN FLAPS - DEFECT MORE THAN 10 CM AVE. DIAM. - FACE/NECK/S
R083	SKIN-FULL THICKNESS GRAFT-MAJOR-OVER 5CM DIAMETER
R085	SKIN-SPLIT THICKNESS GRAFT-MINOR MEDIUM AREA
R086	SKIN-SPLIT THICKNESS GRAFT-INTERMEDIATE LARGE AREAS
R087	SKIN-SPLIT THICKNESS GRAFT-MAJOR-COMPLEX AREA
R088	SKIN-SPLIT THICKNESS GRAFT-EXT-MAJOR-LARGE AREAS
R091	SKIN-FULL THICKNESS GRAFT-COMPLEX-EYELID NOSE LIP FACE
R093	SKIN-FULL THICKNESS GRAFT-INTERMED.-1-5 CM.
R084	SKIN-SPLIT THICKNESS GRAFT-VERY MINOR SMALL AREA
R086	SKIN-SPLIT THICKNESS GRAFT-INTERMEDIATE LARGE AREAS
R092	SKIN-FULL THICKNESS GRAFT-MINOR-LESS THAN 1CM
R522	MUSCLE-EXC.-LESION-MUSCLE/FASCIA-SIMPLE
R523	MUSCLES-EXC.-LESION-MUSCLE/FASCIA-COMPLEX.
R591	MUSCULO.SYST.EXC-TUMOURS-SOFT TISSU-SUPERFICL(PREAM.PAR.32)
R993	TUMOUR-EXCISION-NOT SPECIFICALLY LISTED-I.C.
R063	SKIN & SUBCUT-NEUROVASC. ISLAND TRANSFER -MAJOR.
R064	SKIN & SUBCUT-F.I.FLAP-ELEVATN.F.I.SKIN/SUBCUT FLAP & CLOSE.
R070	SKIN-PEDICLE FLAP-DIRECT/INTERMEDIATE
R071	SKIN-EACH SUBSEQ. STAGE FOR R070
R078	SKIN-PEDICLE FLAP-DIRECT-LARGE-EACH SUBSEQ. STAGE.
R101	SKIN-PEDICLE FLAPS-DELAY-INTERMEDIATE.
R127	SKIN TRANSPL F.I.SKIN&MUSCLE FLAP WITH MICROVASC ANASTOMOSIS
E300	EAR-EXT.-EXC-RESECT.PINNA-WITH PRIMARY CLOSURE.
E301	EAR-EXT.-EXC-RESECT.PINNA-WITH LOCAL FLAP.

Table A2.2 CCI Intervention codes used to define both biopsy and surgery

CCI Intervention codes	
1CX80	REPAIR, EYELID NEC
1CX87	EXCISION, PARTIAL, WITH RECONSTRUCTION, EYELID NEC
1YA80	REPAIR, SCALP
1YA87	EXCISION PARTIAL, SCALP
1YB80	REPAIR, SKIN OF FOREHEAD
1YB87	EXCISION PARTIAL, SKIN OF FOREHEAD
1YC80	REPAIR, SKIN OF EAR
1YC87	EXCISION PARTIAL, SKIN OF EAR
1YD80	REPAIR, SKIN OF NOSE
1YD87	EXCISION PARTIAL, SKIN OF NOSE
1YE80	REPAIR, LIP
1YE87	EXCISION PARTIAL, LIP
1YF80	REPAIR, SKIN OF FACE
1YF87	EXCISION PARTIAL, SKIN OF FACE
1YG80	REPAIR, SKIN OF NECK
1YG87	EXCISION PARTIAL, SKIN OF NECK
1YR80	REPAIR, SKIN OF AXILLARY REGION
1YR87	EXCISION PARTIAL, SKIN OF AXILLARY REGION
1YS80	REPAIR, SKIN OF ABDOMEN AND TRUNK
1YS87	EXCISION PARTIAL, SKIN OF ABDOMEN AND TRUNK
1YT80	REPAIR, SKIN OF ARM
1YT87	EXCISION PARTIAL, SKIN OF ARM
1YU80	REPAIR, SKIN OF HAND
1YU87	EXCISION PARTIAL, SKIN OF HAND
1YV80	REPAIR, SKIN OF LEG
1YV87	EXCISION PARTIAL, SKIN OF LEG
1YW80	REPAIR, SKIN OF FOOT
1YW87	EXCISION PARTIAL, SKIN OF FOOT
1YZ80	REPAIR, SKIN NEC
1YZ87	EXCISION PARTIAL, SKIN NEC
1TX87	EXCISION PARTIAL, SOFT TISSUE OF ARM NEC
1VX87	EXCISION PARTIAL, SOFT TISSUE OF LEG
1SZ87	EXCISION PARTIAL, SOFT TISSUE OF CHEST AND ABDOMEN
1SH87	EXCISION PARTIAL, SOFT TISSUE OF THE BACK
1EQ87	EXCISION PARTIAL, SOFT TISSUE OF HEAD AND NECK
1WV87	EXCISION PARTIAL, SOFT TISSUE OF THE FOOT AND ANKLE
1UY87	EXCISION PARTIAL, SOFT TISSUE OF THE WRIST AND HAND
1DA87	EXCISION PARTIAL, EXTERNAL EAR NEC
1DA89	EXCISION TOTAL, EXTERNAL EAR NEC
1DE87	EXCISION PARTIAL, EXTERNAL AUDITORY MEATUS
1ES87	EXCISION PARTIAL, NASAL CARTILAGE
1ET87	EXCISION PARTIAL, NOSE

Table A3.1 Surgery-specific OHIP Procedure codes

OHIP Procedure codes	
R010	WIDE EXCISION MALIGNANT MELANOMA
R606	EXTREMITIES-AMPUTATION-THROUGH PHALANX-UPPER.
R610	EXTREMITIES-AMPUTATION-TRANS METACARPAL-2ND OR 5TH RAY.
R620	EXTREMITIES-AMPUTATION-LOWER-THROU.METATARSAL/M.P.JOINTS.
R621	EXTREMITIES-AMPUTATION -RAY SINGLE.
R622	EXTREMITIES-AMPUTATION -TRANSMETATARSAL/TRANSTARSAL.
R608	EXTREMITIES-AMPUTATION-METACARPAL/M.P.JOINT
R623	EXTREMITIES-AMPUTATION-SYMES
R624	EXTREMITIES-AMPUTATION-THROUGH TIBIA & FIBULA
R626	EXTREMITIES-AMPUTATION-THROUGH FEMUR
Z427	SENTINEL NODE BIOPSY PER DRAINING BASIN
R914	LYMPHATIC-NODES-EXC.AUXILLARY/INGUINAL LIMITED
R912	LYMPHATIC-NODES-EXC.ILEOINGUINAL-RADICAL
R913	LYMPHATIC-NODES-EXC.-AXILLARY INGUINAL-RADICAL RESECTION
J661	NUCLEAR MED.LYMPHANGIOGRAM
J861	NUCLEAR MED.CORRES.TO J661
R910	LYMPHATIC-NODES-EXC.-NECK-LIMITED
R915	LYMPHATIC NODES-EXC.-MODIFIED RADICAL-PRESERV.SPIN.ACC NERVE
Z405	LYMPHATIC-NODES-EXC.-BIOPSY-CERVICAL AXILLARY INGUINAL
Z406	LYMPHATIC-NODES-EXC.-BIOPSY-SCALENE
Z411	AXILLARY OR INGUINAL LYMPH NODE(S) UNILATERAL

Table A3.2 Surgery-specific CCI Intervention codes

CCI Intervention codes	
1UI93	AMPUTATION, FIRST PHALANX OF HAND
1UJ93	AMPUTATION, OTHER PHALANX OF HAND
1WI93	AMPUTATION, FIRST METATARSAL BONE AND FIRST METATARSOPHALANGEAL JOINT
1WJ93	AMPUTATION, TARSOMETATARSAL JOINTS, OTHER METATARSAL BONES AND OTHER METATARSOPHALANGEAL JOINTS [FOREFOOT]
1WK93	AMPUTATION, FIRST PHALANX OF FOOT
1WL93	AMPUTATION, OTHER PHALANX OF FOOT
1YA58	PROCUREMENT, SCALP
1YB58	PROCUREMENT, SKIN OF FOREHEAD
1YC58	PROCUREMENT, SKIN OF EAR OF AUTOGRAFT [E.G. FAT]
1YF58	PROCUREMENT, SKIN OF FACE
1YG58	PROCUREMENT, SKIN OF NECK
1YS58	PROCUREMENT, SKIN OF ABDOMEN AND TRUNK
1YT58	PROCUREMENT, SKIN OF ARM
1YU58	PROCUREMENT, SKIN OF HAND
1YV58	PROCUREMENT, SKIN OF LEG
1YW58	PROCUREMENT, SKIN OF FOOT
1YZ58	PROCUREMENT, SKIN NEC
1MA52	DRAINAGE, LYMPH NODE(S), HEAD REGION
1MC52	DRAINAGE, LYMPH NODE(S), CERVICAL
1MC87	EXCISION PARTIAL, LYMPH NODE(S), CERVICAL
1MC89	EXCISION TOTAL, LYMPH NODE(S), CERVICAL
1MC91	EXCISION RADICAL, LYMPH NODE(S), CERVICAL
1MD52	DRAINAGE, LYMPH NODE(S), AXILLARY
1MD87	EXCISION PARTIAL, LYMPH NODE(S), AXILLARY
1MD89	EXCISION TOTAL, LYMPH NODE(S), AXILLARY
1MH52	DRAINAGE, LYMPH NODE(S), PELVIC
1MH87	EXCISION PARTIAL, LYMPH NODE(S), PELVIC
1MH89	EXCISION TOTAL, LYMPH NODE(S), PELVIC
1MJ52	DRAINAGE, LYMPH NODE(S), INGUINAL
1MJ87	EXCISION PARTIAL, LYMPH NODE(S), INGUINAL
1MJ89	EXCISION TOTAL, LYMPH NODE(S), INGUINAL
1MJ91	EXCISION RADICAL, LYMPH NODE(S), INGUINAL
2MA71	BIOPSY, LYMPH NODE(S) HEAD REGION
2MC71	BIOPSY, LYMPH NODE(S) CERVICAL
2MD71	BIOPSY, LYMPH NODE(S) AXILLARY
2ME71	BIOPSY, LYMPH NODE(S) MEDIASTINAL
2MF71	BIOPSY, LYMPH NODE(S) INTRATHORACIC NEC
2MG71	BIOPSY, LYMPH NODE(S) INTRA ABDOMINAL
2MH71	BIOPSY, LYMPH NODE(S) PELVIC
2MJ71	BIOPSY, LYMPH NODE(S) INGUINAL
2MK71	BIOPSY, LYMPH NODE(S) EXTREMITY NEC
2MZ71	BIOPSY, LYMPHATIC SYSTEM

Appendix B: Systemic Treatment Definitions

The systemic treatment definition in Appendix B applies to the following indicators:

- **Percentage of Patients Meeting a 62-Day Wait Time from Melanoma Diagnosis to First Treatment (melanoma-specific drugs listed below)**
- **Patients Who Received Adjuvant Systemic Therapy Within 60 Days After Melanoma Surgery (melanoma-specific adjuvant drugs listed below)**

Systemic therapy information was extracted from the following databases: DAD, NACRS, ALR, NDFP, OHIP, and ODB. If a patient had a subsequent cancer diagnosis in the 1-year following their melanoma diagnosis, they were excluded from the systemic therapy definition, as it is unknown if the therapy that is captured is for the melanoma or the subsequent cancer.

Treatment definitions by database

1. **Database:** DAD & NACRS

Data extraction criteria and methodology notes

- Records where the intervention fields show any of the Canadian Classification of Health Interventions (CCI) procedure codes that indicate total body pharmacotherapy was administered with antineoplastic agents (CCI codes listed in **Table B2**) were extracted.
- The systemic treatment visit date was recorded using the admission date or the registration date in DAD or NACRS, respectively.
- ***Exclusion Criteria:***
  - Procedures marked as cancelled or abandoned.
    - If a patient had a DAD/NACRS systemic therapy record in the 3-months preceding their melanoma diagnosis, their records were removed.

Data availability and limitations

- DAD records provide data on inpatient systemic therapy treatments. ALR records provide data on outpatient systemic therapy but will be limited to treatments completed at regional cancer centres (RCCs) and their partner sites. NACRS records supplement ALR data on outpatient systemic therapy treatments.
- For oral medications or treatments involving injection depots, the date that it is received by the patient is captured in DAD, NACRS, NDFP, ODB, or ALR. However, the quantity that is received or expected duration of the treatment from the dose is not considered. For take-home medications, compliance with the treatment regimen is not guaranteed.

2. **Database:** ALR

Data extraction criteria and methodology notes

- ***Inclusion Criteria:***
    - Records indicating that the patient received oral or non-oral antineoplastic systemic therapy treatment (i.e., the S25 metric is ≥ 1)
        - In ALR treatment records, the S1 metric identifies antineoplastic parenteral chemotherapy treatment visits, while the S17 metric flags any activities involving oral chemotherapy prescriptions. S25 includes both S1 and S17.
    - Only the most recent activity records in ALR were included (database allows for resubmissions from facilities): i.e., METHODOLOGY_KEY = 4
    - Treatments where melanoma-specific systemic therapy drugs or melanoma-specific adjuvant therapy drugs were used are listed below.

- ***Exclusion Criteria:***
    - If a patient had an ALR systemic therapy record in the 3-months preceding their melanoma diagnosis, their records were removed.

Data availability and limitations

- DAD records provide data on inpatient systemic therapy treatments. ALR records provide data on outpatient systemic therapy but will be limited to treatments completed at regional cancer centres (RCCs) and their partner sites. NACRS records supplement ALR data on outpatient systemic therapy treatments.
- For oral medications or treatments involving injection depots, the date that it is received by the patient is captured in DAD, NACRS, NDFP, ODB, or ALR. However, the quantity that is received or expected duration of the treatment from the dose is not considered. For take-home medications, compliance with the treatment regimen is not guaranteed.

3. **Database:** NDFP

Data extraction criteria and methodology notes

- ***Inclusion Criteria:***
    - Treatment records where the patient policy status (i.e., policy enrolment status) is “approved”, “prior approval converted”, “under review”, or “request information” and treatment status is “approved”, “under review”, or “request information” Treatments where melanoma-specific systemic therapy drugs or melanoma-specific adjuvant therapy drugs were used are listed below.

- ***Exclusion Criteria:***
    - If a patient had an NDFP systemic therapy record in the 3-months preceding their melanoma diagnosis, their records were removed.

Data availability and limitations

- For oral medications or treatments involving injection depots, the date that it is received by the patient is captured in DAD, NACRS, NDFP, ODB, or ALR. However, the quantity that is received or expected duration of the treatment from the dose is not considered. For take-home medications, compliance with the treatment regimen is not guaranteed.

4. **Database:** OHIP

Data extraction criteria and methodology notes

- The following fee codes were used to define systemic therapy in OHIP if the physician claim record showed that the health care provider held a medical oncology specialty (specialty code = 44):
    - G281 – Each additional standard chemotherapy agent, other than initial agent
    - G345 – Complex single agent or multi-agent therapy – chemo and/or biologic agents that can cause vesicant damage, infusion reactions, cardiac, neurologic, marrow or renal toxicities that may require immediate intervention by the physician.
    - G359 – Special single agent or multi-agent therapy – chemo and/or biologic agents with major toxicity that required frequent monitoring and prolonged administration periods and require immediate intervention by the physician.
    - G381 – Standard chemotherapy – agents with minor toxicity that require physician monitoring.
    - G382 – Supervision of chemotherapy (pharmacologic therapy of malignancy or autoimmune disease) by telephone, monthly
    - G388 – Management of special oral chemotherapy, for malignant disease
- ***Exclusion Criteria:***
    - If a patient had an OHIP systemic therapy record in the 3-months preceding their melanoma diagnosis, their records were removed.

Data availability and limitations

- Physicians have a 6-month period from the date of service to resubmit their claims. Records found in OHIP may take at least 6 months to stabilize.

5. **Database:** ODB

Data extraction criteria and methodology notes

- ***Inclusion Criteria:***
    - Treatments where melanoma-specific systemic therapy drugs or melanoma-specific adjuvant therapy drugs were used are listed below.
- ***Exclusion Criteria:***
    - If a patient had an ODB systemic therapy record in the 3-months preceding their melanoma diagnosis, their records were removed.

Data availability and limitations

- Patients automatically qualify for ODB when they turn 65. Patients eligible for ODB before the age of 65 years include those residing in a long-term care home, home for special care, or Community Home for Opportunity; patients 24 years or younger without a private insurance plan; patients receiving professional home and community care services; those receiving benefits from Ontario Works or Ontario Disability Support Program; and patients enrolled in the Trillium Drug Program.

Table B1. Canadian Classification of Health Intervention (CCI) codes used in DAD and NACRS databases to define total body pharmacotherapy with antineoplastic agents – included in systemic treatment definition

Antineoplastic and Immuno-modulating Agents	Per Orifice (Oral) Approach	Percutaneous Approach (Intramuscular, Intravenous, Subcutaneous, Intradermal)	Route Not Elsewhere Classified (Transdermal, Other)
Antineoplastic agent NOS	1.ZZ.35.CA-M0	1.ZZ.35.HA-M0	1.ZZ.35.YA-M0
Alkylating agent	1.ZZ.35.CA-M1	1.ZZ.35.HA-M1	1.ZZ.35.YA-M1
Antimetabolite	1.ZZ.35.CA-M2	1.ZZ.35.HA-M2	1.ZZ.35.YA-M2
Plant Alkaloid and other natural product	1.ZZ.35.CA-M3	1.ZZ.35.HA-M3	1.ZZ.35.YA-M3
Cytotoxic Antibiotic and Related Substances	1.ZZ.35.CA-M4	1.ZZ.35.HA-M4	1.ZZ.35.YA-M4
Other Antineoplastic	1.ZZ.35.CA-M5	1.ZZ.35.HA-M5	1.ZZ.35.YA-M5
Endocrine Therapy	1.ZZ.35.CA-M6	1.ZZ.35.HA-M6	1.ZZ.35.YA-M6
Combination (multiple) Antineoplastic Agents	1.ZZ.35.CA-M9	1.ZZ.35.HA-M9	1.ZZ.35.YA-M9

Table B2. Canadian Classification of Health Intervention (CCI) codes used in DAD and NACRS databases to define total body pharmacotherapy with antineoplastic agents – excluded in systemic treatment definition

Antineoplastic and Immuno-modulating Agents	Per Orifice (Oral) Approach	Percutaneous Approach (Intramuscular, Intravenous, Subcutaneous, Intradermal)	Route Not Elsewhere Classified (Transdermal, Other)
Immunostimulant	1.ZZ.35.CA-M7	1.ZZ.35.HA-M7	1.ZZ.35.YA-M7
Immunosuppressive agent	1.ZZ.35.CA-M8	1.ZZ.35.HA-M8	1.ZZ.35.YA-M8

List of melanoma-specific systemic therapy drugs

Drug Description

- ALDESLEUKIN
- BINIMETINIB
- CABOZANTINIB
- CARBOPLATIN
- COBIMETINIB
- DABRAFENIB
- DACARBAZINE
- ENCORAFENIB
- IMATINIB MESYLATE
- INTERFERON ALFA-2B,RECOMB.
- IPILIMUMAB
- NIVOLUMAB
- PEMBROLIZUMAB
- TEMOZOLOMIDE

List of melanoma-specific adjuvant systemic therapy drugs

Drug Description

- DABRAFENIB
- INTERFERON ALFA-2B,RECOMB.
- NIVOLUMAB
- PEMBROLIZUMAB
- TRAMETINIB
- VEMURAFENIB

Appendix C: Radiation Therapy Definition

The radiation treatment definition in Appendix C applies to the following indicator:

- **Percentage of Patients Meeting a 62-Day Wait Time from Melanoma Diagnosis to First Treatment**

Radiation therapy was captured using ALR. If a patient had a subsequent cancer diagnosis in the 1-year following their melanoma diagnosis, they were excluded from the radiation therapy definition, as it is unknown if the therapy that is captured is for the melanoma or the subsequent cancer.

Inclusion Criteria:

- All radiation treatment visits that occurred between 3-months prior to diagnosis, up to 1 year after diagnosis.
- All visits classified as “Treatment” under the National Hospital Productivity Improvement Program (NHPIP) code system (DIM_NHPIP_Activity.nhpip_act_grp = 'TREATMENT')
- Patient was present (DIM_NHPIP_Activity.nhpip_patient_present_status = 'Yes')
- Records indicating that the patient received radiation therapy treatment (i.e., the R15 metric is ≥ 1)
    - In ALR, the R15 metric includes receipt of: Brachytherapy (R14), Cobalt treatment visits (R23), Linear accelerator treatment (R24), and Superficial and orthovoltage treatment (R26)
- The delivered dose was specified (fct_ALR_rad_plan_trt_act.dose_per_fraction is not null)
- Records with methodology set to “ALR Base methodology (FY1997-current)”. (fct_ALR_rad_plan_trt_act.methodology_key=4)

Exclusion Criteria:

- Treatment visits where treatment dose was not specified.
- Treatment visits where type of treatment was not specified.
- Patients who had a subsequent cancer diagnosis 1-year after the melanoma diagnosis
- If a patient had an ALR radiation therapy record in the 3-months preceding their melanoma diagnosis, their records were removed.

Appendix D: Identifying Family Physicians with Specialized Skin Training

The methods described in Appendix D applies to the following indicator:

- **Percentage of Patients Who See a Dermatologist or a Family Doctor with Special Training in Skin 6-18 Months After Diagnosis of Melanoma to Assess for Other New Primary Skin Malignancies**

1) Capture all OHIP records for all patients in the melanoma cohort starting from 3 months prior to their melanoma diagnosis up to 18 months following their melanoma diagnosis.
2) Keep records where physician specialty code = '00' (FAMILY PRACTICE AND GENERAL PRACTICE) and fee code either A005, A006, A905, A911, or A912 **and** diagnostic code either 172, 173, 216, 232, 701, or 709
    a. Note: the fee codes represent 'consult' codes that family physicians can bill if a patient was referred to them
    b. The diagnostic codes are codes that would be coded by specialized skin physicians.
3) To empirically create the census, we examined how many distinct patients (from the melanoma cohort) each of these physicians saw in a given year.
4) To be included as a 'specialized skin' family physician, a physician had to see at least 3 unique melanoma patients in any year between 2018 and 2023.

Appendix E: Systemic Treatment Definitions for the Systemic Therapy at End-of-Life Indicator

The methods described in Appendix E apply to the following indicator:

- **Percentage of Melanoma Patients Who Had Systemic Therapy in the Last 30 Days of Life**

1) Systemic therapy information was extracted from the following databases: ALR, OHIP, DAD, NACRS, NDFP, and ODP.

Treatment definitions by database

1. **Database:** DAD & NACRS

Data extraction criteria and methodology notes

- Records where the intervention fields show any of the Canadian Classification of Health Interventions (CCI) procedure codes that indicate total body pharmacotherapy was administered with antineoplastic agents (CCI codes listed in **Table E1** and **Table E2**) were extracted.
- The systemic treatment visit date was recorded using the admission date or the registration date in DAD or NACRS, respectively.
- ***Exclusion Criteria:***
    - Procedures marked as cancelled or abandoned.

Data availability and limitations

- DAD records provide data on inpatient systemic therapy treatments. ALR records provide data on outpatient systemic therapy but will be limited to treatments completed at regional cancer centres (RCCs) and their partner sites. NACRS records supplement ALR data on outpatient systemic therapy treatments.
- For oral medications or treatments involving injection depots, the date that it is received by the patient is captured in DAD, NACRS, NDFP, or ALR. However, the quantity that is received or expected duration of the treatment from the dose is not taken into account. For take-home medications, compliance with the treatment regimen is not guaranteed.

2. **Database:** ALR

Data extraction criteria and methodology notes

- Systemic therapy in the ALR is defined as chemotherapy, targeted therapy, and immunotherapy.
- ***Inclusion Criteria:***
    - Records indicating that the patient received oral or non-oral antineoplastic systemic therapy treatment (i.e., the S25 metric is ≥ 1)
        - In the ALR treatment records, the S1 metric identifies antineoplastic parenteral chemotherapy treatment visits, while the S17 metric flags any activities involving oral chemotherapy prescriptions. S25 includes both S1 and S17.
    - Only the most recent activity records in ALR were included (database allows for resubmissions from facilities): i.e., METHODOLOGY_KEY = 4
    - Treatments where chemotherapy, targeted therapy, and immunotherapy drugs were used and identified using the antineoplastic drug list*

Data availability and limitations

- DAD records provide data on inpatient systemic therapy treatments. ALR records provide data on outpatient systemic therapy but will be limited to treatments completed at regional cancer centres (RCCs) and their partner sites. NACRS records supplement ALR data on outpatient systemic therapy treatments.
- For oral medications or treatments involving injection depots, the date that it is received by the patient is captured in DAD, NACRS, NDFP, or ALR. However, the quantity that is received or expected duration of the treatment from the dose is not taken into account. For take-home medications, compliance with the treatment regimen is not guaranteed.

3. **Database:** NDFP

Data extraction criteria and methodology notes

- Systemic therapy in NDFP is defined as chemotherapy, targeted therapy, and immunotherapy.
- ***Inclusion Criteria:***
    - Treatment records where the patient policy status (i.e., policy enrolment status) is “approved”, “prior approval converted”, “under review”, or “request information” and treatment status is “approved”, “under review”, or “request information.”
    - Treatments where chemotherapy, targeted therapy, and immunotherapy drugs were used and identified using the antineoplastic drug list*

Data availability and limitations

- DAD records provide data on inpatient systemic therapy treatments. ALR records provide data on outpatient systemic therapy but will be limited to treatments completed at regional cancer centres (RCCs) and their partner sites. NACRS records supplement ALR data on outpatient systemic therapy treatments.
- For oral medications or treatments involving injection depots, the date that it is received by the patient is captured in DAD, NACRS, NDFP, or ALR. However, the quantity that is received or expected duration of the treatment from the dose is not taken into account. For take-home medications, compliance with the treatment regimen is not guaranteed.

4. **Database:** OHIP

Data extraction criteria and methodology notes

- The following fee codes were used to define systemic therapy in the OHIP database if the physician claim record showed that the health care provider held a medical oncology specialty (specialty code = 44):
    - G281 – Each additional standard chemotherapy agent, other than initial agent
    - G345 – Complex single agent or multi-agent therapy – chemo and/or biologic agents that can cause vesicant damage, infusion reactions, cardiac, neurologic, marrow or renal toxicities that may require immediate intervention by the physician.
    - G359 – Special single agent or multi-agent therapy – chemo and/or biologic agents with major toxicity that required frequent monitoring and prolonged administration periods and require immediate intervention by the physician.
    - G381 – Standard chemotherapy – agents with minor toxicity that require physician monitoring.
    - G382 – Supervision of chemotherapy (pharmacologic therapy of malignancy or autoimmune disease) by telephone, monthly
    - G388 – Management of special oral chemotherapy, for malignant disease

Data availability and limitations

- Physicians have a 6-month period from the date of service to resubmit their claims. Records found in OHIP may take at least 6 months to stabilize.
- Location of systemic therapy may be missing for treatment records found through OHIP. Facility information is collected in the database but may not be provided for all records.

5. **Database:** ODB

Data extraction criteria and methodology notes

- Systemic therapy in the ODB is defined as chemotherapy, targeted therapy, and immunotherapy.
- Drug identification numbers (DIN) for chemotherapy, targeted therapy and immunotherapy drugs found in the ALR were used to extract the drugs of interest in the ODB database (i.e., the antineoplastic drug list*)
- Records where the DIN was unknown or not applicable were excluded.
- Records were the DIN of a fluorouracil cream (DIN = '00330582') were excluded since this drug has a topical application and should not be considered systemic therapy.

Data availability and limitations

- Patients automatically qualify for the ODB when they turn 65. Patients eligible for the ODB before the age of 65 years include those residing in a long-term care home, home for special care, or Community Home for Opportunity; patients 24 years of younger without a private insurance plan; patients receiving professional home and community care services; those receiving benefits from Ontario Works or Ontario Disability Support Program; and patients enrolled in the Trillium Drug Program.

*Antineoplastic drug list available upon request.

Table E1. Canadian Classification of Health Intervention (CCI) codes used in DAD and NACRS databases to define total body pharmacotherapy with antineoplastic agents – included in systemic treatment definition

Antineoplastic and Immuno-modulating Agents	Per Orifice (Oral) Approach	Percutaneous Approach (Intramuscular, Intravenous, Subcutaneous, Intradermal)	Route Not Elsewhere Classified (Transdermal, Other)
Antineoplastic agent NOS	1.ZZ.35.CA-M0	1.ZZ.35.HA-M0	1.ZZ.35.YA-M0
Alkylating agent	1.ZZ.35.CA-M1	1.ZZ.35.HA-M1	1.ZZ.35.YA-M1
Antimetabolite	1.ZZ.35.CA-M2	1.ZZ.35.HA-M2	1.ZZ.35.YA-M2
Plant Alkaloid and other natural product	1.ZZ.35.CA-M3	1.ZZ.35.HA-M3	1.ZZ.35.YA-M3
Cytotoxic Antibiotic and Related Substances	1.ZZ.35.CA-M4	1.ZZ.35.HA-M4	1.ZZ.35.YA-M4
Other Antineoplastic	1.ZZ.35.CA-M5	1.ZZ.35.HA-M5	1.ZZ.35.YA-M5
Endocrine Therapy	1.ZZ.35.CA-M6	1.ZZ.35.HA-M6	1.ZZ.35.YA-M6
Combination (multiple) Antineoplastic Agents	1.ZZ.35.CA-M9	1.ZZ.35.HA-M9	1.ZZ.35.YA-M9

Table E2. Canadian Classification of Health Intervention (CCI) codes used in DAD and NACRS databases to define total body pharmacotherapy with antineoplastic agents – excluded from systemic treatment definition

Antineoplastic and Immuno-modulating Agents	Per Orifice (Oral) Approach	Percutaneous Approach (Intramuscular, Intravenous, Subcutaneous, Intradermal)	Route Not Elsewhere Classified (Transdermal, Other)
Immunostimulant	1.ZZ.35.CA-M7	1.ZZ.35.HA-M7	1.ZZ.35.YA-M7
Immunosuppressive agent	1.ZZ.35.CA-M8	1.ZZ.35.HA-M8	1.ZZ.35.YA-M8

Regimens and drugs used in treating malignant melanoma (applied to the numerator)

Drug Description

- Pembrolizumab - Advanced Melanoma (Unresectable or Metastatic Melanoma) and no prior ipilimumab
- SKIN-MELANOMA, GU-RENAL CELL, GI-COLORECTAL, MESOTHELIOMA - NIVOLUMAB, IPILIMUMAB
- SKIN-MELANOMA, LUNG, GI, GU, HEMATOLOGY, HEAD AND NECK - NIVOLUMAB
- CHLORAMBUCIL
- DABRAFENIB
- LUNG-NSCLC, MELANOMA, CNS - DABRAFENIB, TRAMETINIB
- MELANOMA - DABRAFENIB
- MELANOMA, LUNG, GI, GU, GYNE, HEMATOLOGY, HEAD AND NECK, BREAST - PEMBROLIZUMAB

Section C. Data Tables

First Nations

All data in the following tables were:

1) Age-standardized to the 1960 World Standard population
2) Sourced from the Indian Registration System, Ontario Cancer Registry
3) Adapted from Cancer in First Nations People in Ontario: Incidence, Mortality, Survival, and Prevalence Report (2018)

3.1 Incidence of melanoma in First Nations people and Other People in Ontario, All Ages, Both Sexes Combined, 1991-2020

Population	Incidence (new cases per 100,000 people)
First Nations	3.0
Others	11

3.2 Incidence of Melanoma in First Nations Females and Other Females in Ontario, All Ages, 1991-2020

Population	Melanoma (new cases per 100,00 females)	All sites (new cases per 100,00 females)
First Nations	3.4	290.8
Others	9.7	276.1

3.3 Incidence of Melanoma in First Nations Males and Other Males in Ontario, All Ages, 1991-2010

Population	Melanoma (new cases per 100,000 males)	All sites (new cases per 100,000 males)
First Nations	2.6	324
Others	11.7	337

3.4 Prevalence of Melanoma in First Nations People in Ontario as of January 1, 2011, All Ages, Both Sexes Combined, by Time Since Diagnosis

Time Since Diagnosis	Prevalent cases (%)
<2 years since diagnosis	24
2 to <5 years since diagnosis	24
5 to 10 years since diagnosis	53

Burden (Incidence, Mortality, Prevalence, Survival)

Melanoma Incidence in Ontario

4.1 Age-standardized Melanoma Incidence Rates, by Sex

Year	Males and females combined			Males			Females		
	Rate per 100,000	95% CI (%)	Count	Rate per 100,000	95% CI (%)	Count	Rate per 100,000	95% CI (%)	Count
2016	26.0	25.2 - 26.8	3835	32.6	31.3 - 34.0	2219	21.0	19.9 - 22.0	1616
2017	25.0	24.2 - 25.8	3755	29.9	28.6 - 31.2	2088	21.3	20.3 - 22.3	1667
2018	25.1	24.3 - 25.9	3877	29.9	28.7 - 31.2	2162	21.3	20.3 - 22.3	1715
2019	26.4	25.6 - 27.2	4210	31.7	30.5 - 33.1	2363	22.3	21.3 - 23.4	1847
2020	21.1	20.4 - 21.9	3445	26.5	25.3 - 27.7	2009	16.8	16.0 - 17.7	1436

Data Notes:

1) Incident cases are based on the National Cancer Institute Surveillance, Epidemiology and End Results (SEER) Program standards for counting multiple primary cancers.
2) Rates are standardized to the age distribution of the 2011 Canadian standard population.
3) Confidence intervals (Tiwari mod) are 95% for rates.

4.2 Age-specific Melanoma Incidence Rates, by Age Group

Year	Ages 20-29			Ages 30-49			Ages 50-69			Ages 70-84			Age 85+		
	Rate per 100,000	95% CI (%)	Count	Rate per 100,000	95% CI (%)	Count	Rate per 100,000	95% CI (%)	Count	Rate per 100,000	95% CI (%)	Count	Rate per 100,000	95% CI (%)	Count
2016	3.8	3.5 – 4.8	72	13.9	12.7 – 15.1	505	42.6	40.6 – 44.8	1600	99.7	94.2 – 105.5	1207	146.0	132.7 – 160.2	442
2017	3.7	2.9 – 4.7	72	14.6	13.4 – 15.9	532	42.8	40.7 – 44.9	1622	90.2	85.0 – 95.6	1147	119.4	107.6 – 132.2	374
2018	3.6	2.8 – 4.6	73	14.7	13.5 – 16.0	538	43.4	41.3 – 45.5	1676	91.1	86.0 – 96.4	1209	116.4	104.9 – 128.8	375
2019	2.6	2.0 – 3.4	55	14.0	12.9 – 15.3	523	43.3	41.3 – 45.5	1696	106.0	100.6 – 111.6	1471	138.0	125.6 – 151.2	457
2020	2.3	1.7 – 3.0	48	10.7	9.6 – 11.8	397	33.7	31.9 – 35.6	1342	89.6	84.8 – 94.7	1279	110.2	99.3 – 121.9	374

4.3 Age-Standardized Melanoma Mortality Rates, by Sex

Year	Males and females combined			Males			Females		
	Rate per 100,000	95% CI (%)	Count	Rate per 100,000	95% CI (%)	Count	Rate per 100,000	95% CI (%)	Count
2016	3.4	3.1 - 3.7	512	5.1	4.5 - 5.6	337	2.1	1.8 - 2.5	175
2017	3.1	2.8 - 3.3	470	4.2	3.7 - 4.7	291	2.1	1.8 - 2.4	179
2018	3.1	2.8 - 3.4	487	4.4	3.9 - 4.9	307	2.1	1.8 - 2.4	180
2019	2.9	2.7 - 3.2	480	4.5	4.1 - 5.1	332	1.6	1.4 - 1.9	148
2020	3.1	2.8 - 3.4	523	4.6	4.1 - 5.1	350	1.9	1.6 - 2.2	173

1) Rates are standardized to the age distribution of the 2011 Canadian Standard population.
2) Confidence intervals (Tiwari mod) are 95% for rates.

4.4 Age-Specific Melanoma Mortality Rates, by Age Group

Year	Ages 20-29			Ages 30-49			Ages 50-69			Ages 70-84			Age 85+		
	Rate per 100,000	95% CI (%)	Count	Rate per 100,000	95% CI (%)	Count	Rate per 100,000	95% CI (%)	Count	Rate per 100,000	95% CI (%)	Count	Rate per 100,000	95% CI (%)	Count
2016	^	^	^	0.9	0.6 - 1.3	35†	4.4	3.8 - 5.1	162	16.8	14.6 - 19.3	205	36.3	29.9 - 43.8	110
2017	^	^	^	1.1	0.8 - 1.5	40†	4.1	3.4 - 4.8	151	14.4	12.4 - 16.7	185	30.0	24.3 - 36.7	94
2018	^	^	^	1.0	0.7 - 1.4	40†	4.2	3.6 - 4.9	158	13.6	11.7 - 15.8	183	33.2	27.2 - 40.1	107
2019	^	^	^	0.9	0.6 - 1.2	35†	4.0	3.4 - 4.7	151	13.1	11.3 - 15.2	184	33.5	27.6 - 40.4	111
2020	^	^	^	0.9	0.6 - 1.2	35†	3.9	3.3 - 4.6	150	15.1	13.2 - 17.2	220	35.1	29.0 - 42.0	119

1) ^ means statistic not displayed due to fewer than 6 cases.
2) † Counts have been rounded to protect small cells and associated rates and confidence intervals adjusted to reflect rounded counts

4.5 10-Year Melanoma Prevalence Proportion, by Sex

Year	Males and females combined			Males			Females		
	Rate per 100,000	95% CI (%)	Count	Rate per 100,000	95% CI (%)	Count	Rate per 100,000	95% CI (%)	Count
2016	159.8	157.7 - 161.9	22,323	168.7	165.6 - 171.8	11,614	151.1	148.3 - 154.0	10,709
2017	164.4	162.3 - 166.5	23,331	174.7	171.6 - 177.8	12,228	154.4	151.6 - 157.3	11,103
2018	168.4	166.3 - 170.5	24,294	179.1	176.0 - 182.2	12,754	158.0	155.1 - 160.9	11,540
2019	172.6	170.5 - 174.7	25,256	183.7	180.5 - 186.8	13,276	161.8	158.9 - 164.7	11,980
2020	169.9	167.8 - 172.0	25,083	181.8	178.7 - 184.9	13,261	158.2	155.4 - 161.1	11,822

Data Notes:

1) Prevalence based on incident cases using International Agency for Research on Cancer/International Association of Cancer Registries rules for counting.

4.6 10-year Melanoma Prevalence Proportion, by Age Group

Year	Ages 20-29			Ages 30-49			Ages 50-69			Ages 70-84			Age 85+		
	Rate per100,000	95% CI (%)	Count	Rate per 100,000	95% CI (%)	Count	Rate per 100,000	95% CI (%)	Count	Rate per 100,000	95% CI (%)	Count	Rate per 100,000	95% CI (%)	Count
2016	17.6	15.8 – 19.6	339	89.9	86.9 – 93.0	3,332	257.8	252.6 – 263.0	9,527	544.5	531.7 – 557.6	6,811	740.7	710.6 – 771.8	2,281
2017	16.9	15.1 – 18.8	335	89.6	86.7 – 92.7	3,353	264.3	259.1 – 269.6	9,852	558.6	545.9 – 571.6	7,334	763.5	733.4 – 794.5	2,425
2018	15.7	14.1 – 17.5	322	90.1	87.1 – 93.1	3,417	271.9	26.7 – 27.7	10,225	570.3	557.7 – 583.1	7,827	758.9	729.3 – 789.4	2,479
2019	14.5	12.9 – 16.2	303	88.1	85.1 – 91.1	3,394	275.9	270.7 – 281.3	10,466	588.1	575.6 – 600.8	8,408	794.2	764.4 – 825.0	2,663
2020	13.6	12.1 – 15.3	287	82.6	79.8 – 85.5	3,227	269.1	263.9 – 274.3	10,276	580.0	567.8 – 592.4	8,609	778.5	749.2 – 808.6	2,667

Data Notes:

1) Prevalence based on incident cases using International Agency for Research on Cancer/International Association of Cancer Registries rules for counting.

Data Notes:

1) Survival based on incident cases using International Agency for Research on Cancer/International Association of Cancer Registries rules for counting multiple primaries.
2) Rates are calculated by actuarial method and Ederer II method are used for cumulative expected.
3) Rates are age-standardized to the International Cancer Survival Standard 2 – Ages 15+ (applies to survival rates, by sex)

4.7 Age-standardized Survival (Observed) Ratios, by Sex

Sex	2006 to 2010		2016 to 2010	
	Observed Survival (%)	95% CI – OSR (%)	Observed Survival (%)	95% CI – OSR (%)
Males and females combined	81.6	81.0 – 82.3	85.1	84.3 – 85.8
Males	77.5	76.4 – 78.5	81.9	80.6 – 83.1
Females	86.2	85.3 – 87.0	88.6	87.6 – 89.5

4.7 Age-standardized Survival (Relative) Ratios, by Sex

Sex	2006 to 2010		2016 to 2010	
	Relative Survival (%)	95% CI – RSR (%)	Relative Survival (%)	95% CI – RSR (%)
Males and females combined	87.7	87.0 – 88.4	91.3	90.5 – 92.1
Males	84.1	82.9 – 85.1	88.6	87.3 – 89.9
Females	91.5	90.5 – 92.4	94.1	93.0 – 95.0

4.8 Age-specific 5-Year Observed Survival Rates, by Age Group

Age Group	2006 to 2010		2016 to 2010	
	Observed Survival (%)	95% CI (%)	Observed Survival (%)	95% CI (%)
Ages 20-29	94.1	91.3 - 96.1	95.3	90.7 – 97.6
Ages 30-49	90.4	89.2 – 91.5	93.3	91.8 – 94.6
Ages 50-69	84.1	83.0 – 85.1	88.3	87.2 – 89.3
Ages 70-84	65.2	63.5 – 66.8	71.6	69.8 – 73.3
Ages 85-99	38.3	34.9 – 41.7	35.9	32.5 – 39.3

4.9 Age-specific 5-Year Relative Survival Rates, by Age Group

Age Group	2006 to 2010		2016 to 2010	
	Relative Survival (%)	95% CI (%)	Relative Survival (%)	95% CI (%)
Ages 20-29	94.3#	91.5# – 96.2#	95.5#	90.9# – 97.9#
Ages 30-49	91.1	89.9 – 92.2	94.0#	92.4# – 95.3#
Ages 50-69	87.7	86.6 – 88.8	92.1	91.0 – 93.1
Ages 70-84	81.3#	79.2# – 83.2#	87.3	84.9 – 89.3
Ages 85-99	78.8	70.7 – 84.9	74.4#	67.4# – 80.1#

1) # means the relative cumulative survival increased from a prior interval and has been adjusted.

Melanoma Indicators

Diagnosis

Time from Diagnosis to First Treatment

Table 6.1 Melanoma Patients who Received Treatment within 62-Days from Time of Diagnosis

Year	Percent (%)	Median (Days)	25th Percentile (Days)	Median (Days)	75th Percentile (Days)
2018	74.3	42	25	42	63
2019	76.0	40	24	40	61
2020	81.2	35	21	35	55
2021	78.9	40	25	40	57
2022	67.4	48	29	48	71

Note: The 25th percentile, median, etc. are not limited to those with treatment in less than 62 days.

6.2 Melanoma Patients who Received Treatment within 62-Days from Time of Diagnosis, by Sex

Sex	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)
Female	75.1	75.3	81.1	80.6	67.7
Male	73.7	76.5	81.3	77.6	67.2

6.3 Melanoma Patients who Received Treatment within 62-Days from Time of Diagnosis, by Age Group

Age Group	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)
18-29	79.1	87.8	85.4	80.0	74.5
30-49	77.6	79.6	84.0	83.2	67.2
50-69	74.9	76.0	83.1	79.4	68.0
70-89	72.2	73.6	78.3	76.6	66.8
90+	71.4	82.7	81.0	83.8	65.9

6.4 Melanoma Patients who Received Treatment within 62-Days from Time of Diagnosis, by Rurality

Rurality	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)
Urban	73.7	76.0	81.3	79.0	68.5
Rural & Remote	77.7	75.6	80.8	78.2	61.4

6.5 Melanoma Patients who Received Treatment within 62-Days from Time of Diagnosis, by Material Resources Marginalization

Material Resources	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)
Quintile 1 – lowest marginalization	75.5	76.4	82.8	79.6	67.6
Quintile 2	74.6	76.4	81.5	78.9	68.6
Quintile 3	74.9	77.4	81.1	80.0	67.5
Quintile 4	72.4	72.8	80.8	78.2	65.7
Quintile 5 – highest marginalization	72.4	75.2	78.7	77.0	67.1

Treatment

Planned Adjuvant Systemic Therapy After Melanoma Surgery

Table 7.1 Patients Who Received Planned Adjuvant Systemic Therapy After Melanoma Surgery within 60 Days

Year	Percent (%)	25th Percentile (Days)	Median (Days)	75th Percentile (Days)	90th Percentile (Days)
2018	28.2	56	88	123	151
2019	37.7	51	71	92.5	126.5
2020	43.8	44	65	94.5	129
2021	46.6	41	62	89	119
2022	42.4	46.5	66	98.5	130

Note: The 25th percentile, median, etc., are for all patients with surgery and systemic, not just those within 60 days.

7.2 Patients Who Received Planned Adjuvant Systemic Therapy After Melanoma Surgery within 60 Days, by Age Group

Age Group	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)
30 – 49	25.6	50.0	60.5	56.6	50.0
50 – 69	25.0	34.2	42.5	47.2	43.0
70 – 89	34.7	35.4	40.9	42.7	40.3

7.3 Patients Who Received Planned Adjuvant Systemic Therapy After Melanoma Surgery within 60 Days, by Material Resources Marginalization

Material Resources	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)
Quintile 1 – lowest marginalization	28.3	37.0	48.8	54.1	49.1
Quintile 2	27.7	31.3	50.7	44.3	40.0
Quintile 3	27.3	46.0	39.1	48.5	42.4
Quintile 4	31.7	38.1	43.8	46.8	43.3
Quintile 5 – highest marginalization	24.2	36.4	32.6	36.8	32.1

Unplanned Emergency Department Visits After Surgery

Table 7.2 Unplanned Emergency Department Visits within 30 Days after Melanoma Surgery

Year	Numerator	Denominator	Percent (%)
2018	338	3207	10.5
2019	349	3275	10.7
2020	233	2521	9.2
2021	319	3303	9.7
2022	350	3724	9.4

7.4 Unplanned Emergency Department Visits after Melanoma Surgery, by Sex

Sex	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)
Female	10.0	8.0	8.7	8.5	8.0
Male	11.0	12.8	9.6	10.6	10.6

7.5 Rate of Unplanned Emergency Department Visits after Melanoma Surgery, by Age Group

Age Group	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)
30 – 49	8.3	9.3	7.3	9.8	8.0
50 – 69	10.0	9.9	10.0	8.8	9.4
70 - 89	11.1	11.5	9.0	10.3	9.7

Note: Data for age cohorts 18–29 and 90+ are suppressed due to small values

7.6 Unplanned Emergency Department Visits after Melanoma Surgery, by Rurality

Rurality	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)
Urban	9.5	9.8	8.3	9.4	9.2
Rural & Remote	16.7	14.5	13.6	11.1	10.5

Symptom Management

Your Symptoms Matter – General Symptoms (ESAS-r+ Screening)

8.1 Monthly ESAS-r+ Screening Rate

Month	2018 (%)	2019 (%)	2020 (%)	2021 (%)	2022 (%)
January	53.6	56.9	53.3	19.2	22.5
February	51.5	58.8	55.1	19.1	23.5
March	53.5	57.2	38.4	19.2	25.8
April	52.0	56.8	9.4	20.2	25.5
May	58.8	57.2	11.2	21.6	28.8
June	59.4	55.3	13.6	21.8	24.8
July	56.8	52.8	15.3	24.5	23.1
August	56.5	55.8	19.2	23.8	21.5
September	53.4	54.6	16.3	25.1	23.8
October	51.9	53.2	18.1	29.9	25.1
November	55.3	52.2	19.3	30.5	25.2
December	54.0	47.8	17.7	26.3	21.1

Survivorship

Follow-up Care after a Melanoma Diagnosis

9.1 Patients who saw a Dermatologist or a Specialized Family Doctor 6-18 Months After a Diagnosis

Overall (%)	2018	2019	2020	2021	2022
	69.1	65.4	68.4	67.8	68.7

9.2 Patients who saw a Dermatologist or a Specialized Family Doctor 6-18 Months After a Diagnosis, by Sex

Sex (%)	2018	2019	2020	2021	2022
Female	71.9	66.7	67.3	69.3	67.9
Male	66.7	64.3	69.3	66.6	69.3

9.3 Patients who saw a Dermatologist or a Specialized Family Doctor 6-18 Months After a Diagnosis, by Age Group

Age Group (%)	2018	2019	2020	2021	2022
18-29	71.2	64.0	70.0	61.5	79.2
30-49	73.5	69.7	76.3	73.9	69.1
50-69	70.3	68.3	69.1	71.4	70.7
70-89	66.6	63.1	66.0	64.7	68.1
90+	48.4	36.4	47.4	39.4	42.2

9.4 Patients Who See a Dermatologist or a Skin-Specialized Family Doctor 6-18 Months After a Diagnosis, by Rurality

Rurality (%)	2018	2019	2020	2021	2022
Urban	71.2	67.6	70.4	69.5	70.8
Rural & Remote	56.0	55.9	56.5	59.8	57.3

9.5 Patients who saw a Dermatologist or a Specialized Family Doctor 6-18 Months After a Diagnosis, by Material Resources Marginalization

Material Resources (%)	2018	2019	2020	2021	2022
Quintile 1 – lowest marginalization	73.1	70.1	72.8	72.9	73.8
Quintile 2	70.8	65.9	71.2	67.0	70.9
Quintile 3	65.8	65.7	66.7	68.8	68.4
Quintile 4	68.2	64.2	64.3	63.9	67.0
Quintile 5 – highest marginalization	63.5	56.0	62.1	62.0	53.9

9.6 Melanoma Survivors, 2018 to 2022

Year	Number of Melanoma Survivors	Change from previous year (%)
2018	42889	-
2019	44937	+4.8%
2020	46072	+2.5%
2021	47933	+4.0%
2022	50028	+4.4%

9.7 Melanoma Survivors (2022), Age Distribution

Age Group	Age Distribution (%)
18 – 29	0.5
30 – 49	9.8
50 – 69	39.7
70 - 89	44.6
90+	5.4

9.8 Melanoma Survivors (2022), Sex Distribution

Sex	Sex Distribution (%)
Female	50.9
Male	49.1

9.9 Melanoma Survivors (2022), by Material Resources Marginalization

Material Resources	(%)
Quintile 1 – lowest marginalization	27.3
Quintile 2	23.1
Quintile 3	19.2
Quintile 4	16.6
Quintile 5 – highest marginalization	12.5

Palliative Care and End-of-Life Care

Melanoma-Specific Systemic Therapy in the Last 30 Days of Life

10.1 Patients Who Received Melanoma-specific Systemic Therapy in the Last 30 Days of Life

Year	2018	2019	2020	2021	2022
Patients that had systemic therapy in the last 30 days of life (%)	2.9	2.7	2.0	3.1	2.3

Two or More Acute Care Admissions in the Last 30 Days of Life

10.2 Patients that had Two Acute Care Admissions in the Last 30 Days of Life

Year	2018	2019	2020	2021	2022
Patients that had two or more acute care admissions in last 30 days of life (%)	8.2	6.2	6.7	5.8	5.2

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