2019

Manitoba Cancer System Performance Report

CancerCare Manitoba
ActionCancerManitoba

CONTENTS

CancerCare Manitoba's vision, mission and values are cultivated with patient, public and partner input, and are advanced through public outreach.

OUR VISION

A world free of cancer.

OUR MISSION

To reduce and, where possible, eliminate the burden of cancer on the people of Manitoba through exemplary programs of prevention, diagnosis, treatment, rehabilitation, continuing care, research and education.

OUR VALUES

RESPECT FOR PEOPLE
Dignity, fairness, openness, equity, collaboration, cooperation, sensitivity to cultural diversity and identity, compassion, privacy, confidentiality.

INTEGRITY
Honesty, objectivity, reliability, responsibility, fidelity, transparency.

EXCELLENCE
Timeliness, efficiency, effectiveness, relevance, diligence, creativity, initiative.

STEWARDSHIP
Prudence, sensitivity to risks, opportunities and sustainability of human and material resources and the natural and built environment, accountability.

A Message from Dr. Sri Navaratnam, The President and CEO

"What gets measured gets improved." Robin S. Sharma

CancerCare Manitoba is mandated to provide cancer control to the province of Manitoba. This is achieved through strategy and long-term planning for the delivery of excellence in services for cancer and blood disorders.

In previous years, CancerCare Manitoba published the Community Health Assessment, reporting on the health of the Manitoba population in relation to cancer. As the provincial leader for cancer control, CancerCare Manitoba recognized the importance of measuring and reporting on the performance of the cancer system in Manitoba. This was achieved by incorporating it as one of the 2016-2021 Manitoba Cancer Plan's strategic directions, Toward Enhanced Reporting on Performance, Quality and Safety. The Manitoba Cancer System Performance Report is the summary of the measurement of various health, access, and outcome indicators that reflect the performance of the cancer system in Manitoba.

CancerCare Manitoba's public reporting on performance brings transparency and accountability to the population we serve. This report provides the foundation for CancerCare Manitoba to work towards further excellence of cancer services received by Manitobans. Continuing to measure, monitor and report informs and leads to continuous improvement.

As the President and CEO of CancerCare Manitoba, I am extremely proud to present this first report of its kind to the population we serve. I would like to express my appreciation to report leads Dr. Donna Turner, Provincial Director of Population Oncology, and Carrie O'Conaill, System Performance Specialist, as well as the many CancerCare Manitoba staff and partners who worked together to create this report. CancerCare Manitoba is committed to ensuring high quality cancer care services for the people of Manitoba regardless of where they live.

Sincerely,

Dr. Sri Navaratnam,
President and CEO, CancerCare Manitoba

A Message from System Performance Report Leads

We are pleased to release our first comprehensive Manitoba Cancer System Performance report.

Although this style of publication is new, the report is the latest in a tradition of open communications related to statistics, measurement and benchmarking by CancerCare Manitoba (CCMB) including CCMB's Community Health Assessments and significant participation in the Canadian Partnership Against Cancer (CPAC) System Performance reports. As a result, CCMB has been able to allow assessment of trends over time and by geography, and comparison to benchmarks set by high performing jurisdictions. Inspired by work done by colleagues in the United Kingdom, Cancer Care Ontario and CPAC, we recognize that indicator development is an ongoing progressive process to be improved and refined as CCMB learns more and as better information and measurement tools become available. CCMB is also developing additional more detailed reports for the Manitoba Cancer System Performance series, which will enable deeper analysis of various cancer programs and policies.

The Manitoba Cancer System Performance Report shows "cancer care by the numbers." The current set of indicators builds on previous reports and expands to include additional metrics, developed in consultation with our partners. We recognize that measurement is an essential part of good cancer system management. It allows us to focus on improving both the health of our community and the care we provide to Manitobans living with cancer. It meets the need to report on our services as outlined by Manitoba Health, Seniors and Active Living in the Community Health Assessment guidelines.

Currently there is no single data system in place to answer all our cancer questions, but there is growing consensus regarding specific indicators that describe the cancer system's performance. As such, the Manitoba Cancer System Performance Report includes measures across the spectrum of cancer service delivery, from prevention to screening and diagnosis, as well as treatment, survivorship and advanced disease. Outcomes including incidence, survival, mortality and the patient experience are essential components of system performance as we monitor how our processes (what we do) influences our patients, their families and Manitobans as a whole. We have expanded our scope beyond the traditional set of metrics to introduce other important features in the delivery of cancer care such as the role of molecular markers in cancer treatment, wait times, the cost of cancer treatments, and the need for special efforts to ensure equity in potentially underserved populations.

In the next few pages you will find a full list of data sources used in this report. We are grateful for the analysis performed by CCMB staff (Epidemiology Unit, Screening, Provincial Cancer Referral and Navigation Service, and System Performance) as well as our colleagues at Statistics Canada who analyzed the Canadian Community Health Survey data and NRC Health who analyzed the patient satisfaction survey data.

Wherever possible, this report uses:

1. Reliable data that are already published or routinely cited, adding in new data where there are gaps;
2. Indicator definitions that are used by at least one other partner (provincial or national); and
3. Trends or benchmarks to provide an indication of whether CCMB is improving in a particular cancer-related area.

In several sections where we present information on time trends, arrows summarize the patterns: increase of 10% or more, little change, or a decrease of 10% or more. Colour shows whether the trend is good (green), neutral (yellow) or needs to improve (red).

Of course, the Manitoba Cancer System Performance report does not represent the end of our work, only a milestone. By measuring and reporting on how we are doing, we can advance areas of strength and address areas we identify as gaps. But changing the course of cancer is not one we will do alone. With our partners, CCMB will continue working towards its mission to reduce the impact of cancer throughout the province.

Dr. Donna Turner, PhD
Provincial Director of Population Oncology,
CancerCare Manitoba

Carrie O'Conaill, MSc
System Performance Specialist
CancerCare Manitoba

COMMON ACRONYMS FOUND IN THIS REPORT

AOPSS	Ambulatory Oncology Patient Satisfaction Survey
ASIR	Age-Standardized Incidence Rates
AYA	Adolescents and Young Adults
CCMB	CancerCare Manitoba
CCP	Community Cancer Program
CEO	Chief Executive Officer
CIHI	Canadian Institute for Health Information
COMPASS	Comprehensive Problem and Symptom Screening Questionnaire
CPAC	Canadian Partnership Against Cancer
CPC	Canadian Problem Checklist
CPJI	Cancer Patient Journey Initiative
CT	Computerized Tomography
CYP-C	Cancer in Young People in Canada
ER	Estrogen Receptor Test
ESAS-r	Edmonton Symptom Assessment Survey - revised
FIT	Fecal Immunochemical Test
FOBT	Fecal Occult Blood Test
HDR	High-Dose Radiation Brachytherapy
HER2	Human Epidermal Growth Factor Receptor 2 Test
HPV	Human Papillomavirus
ICBP	International Cancer Benchmarking Partnership
IERHA	Interlake-Eastern Regional Health Authority
LDR	Low-Dose Radiation Brachytherapy
MAID	Medical Assistance in Dying
MANTRA	Manitoba Tobacco Reduction Alliance
MBMT	Manitoba Blood and Marrow Transplant
MRI	Magnetic Resonance Imaging
MUGA	Multigated Acquisition Scan
NHL	Non-Hodgkin Lymphoma
NORTHERN	Northern Regional Health Authority
NSCLC	Non-Small-Cell Lung Cancer
OECD	Organization for Economic Cooperation and Development
PCP	Primary Care Practitioner
PET	Positron-emission Tomography
PR	Progesterone Receptor Test
PMH	Prairie Mountain Health
PROFYLE	Precision Oncology for Young People
RCP	Regional Cancer Program
RHA	Regional Health Authority
RIOH	Research Institute in Oncology and Hematology
SBRT	Stereotactic Body Radiation Therapy
SOUTHERN	Southern Health - Santé Sud
SCC	Squamous Cell Carcinoma
TEM	Transanal Endoscopic Microsurgery
WMCC	Western Manitoba Cancer Centre
WRHA	Winnipeg Regional Health Authority
YHS	Youth Health Survey

DATA SOURCES

Data sources used in this report include:

- Manitoba Cancer Registry
- Manitoba Health, Seniors and Active Living
- SharedHealth (especially the programs involved with diagnostics)
- Canadian Partnership Against Cancer
- Statistics Canada
- Canadian Community Health Survey (CCHS)
- NRC Health's Ambulatory Oncology Patient Satisfaction Survey
- Winnipeg Regional Health Authority Palliative Care Program
- Medical Assistance in Dying (MAID) Program
- Winnipeg Regional Health Authority Language Access Program
- Winnipeg Regional Health Authority Indigenous Health
- Organization for Economic Cooperation and Development
- International Cancer Benchmarking Partnership
- CancerCare Manitoba Screening Programs Registries
- Other CancerCare Manitoba Datasets and Databases supported by:
  - System Performance
  - Health Information Services
  - Radiation Oncology Program
  - Department of Medical Oncology and Hematology
  - Research Institute in Oncology and Hematology
  - Clinical Trials Unit
  - Patient and Family Support Services
  - CCMB Quit Smoking Program
  - Surgical Synoptic Reporting Database
  - Manitoba Blood and Marrow Transplant Program
  - Quality, Patient Safety and Risk
  - Urgent Cancer Care Clinic
  - COMPASS (Patient-Reported Outcome Measure)
  - Community Oncology Program
    - Provincial Cancer and Navigation Service
    - Underserved Populations Program
    - Moving Forward After Cancer Program
  - and other program leaders and researchers

COMMUNITY PARTNERS

We greatly value our relationships with patients, their loved ones, and the general public. The insight and experiences of the community was integral to telling the story of cancer care in Manitoba. During development and review phases of this report we worked with community partners to ensure that the patient voice was reflected fairly and honestly. During development we met patient partners during various working group meetings and an interactive presentation at the *Community Cancer Conference*. During our review phase we consulted with community partners using focus group and survey methodologies. We also invited patients and their loved ones to share stories about their experience with cancer to highlight in section cover pages.

GOALS OF THIS REPORT:

1. to understand the health of Manitoba residents.
2. to be responsive to local health issues.
3. to describe and to understand those conditions which contribute to health disparities.
4. to plan health services informed by evidence (to create and exchange knowledge and evidence in order to plan health services).
5. to track changes in population health over time.
6. to reflect the voices of our communities.

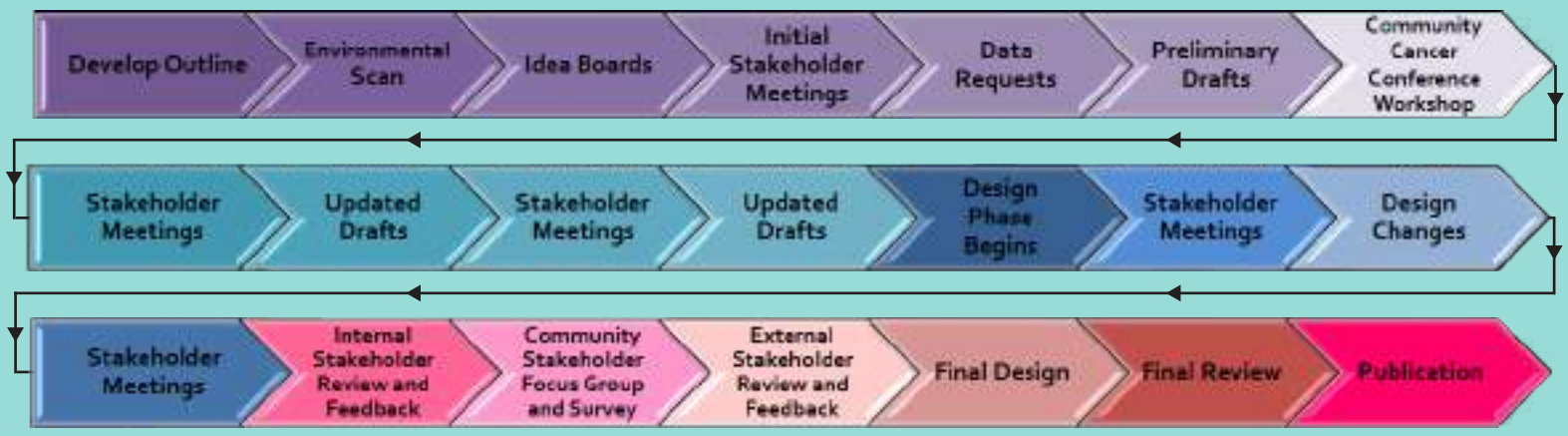
THE PURPOSE OF THIS REPORT IS TO:

1. provide baseline information about health status of residents.
2. understand the health status of diverse populations in the health regions.
3. provide evidence about where to target interventions for prevention and health promotion.
4. influence evidence-informed decision-making and priority setting for strategic planning and operational planning.
5. guide policy and program development.
6. monitor changes and trends in health status over time.
7. encourage collaboration with community and stakeholders.
8. identify links and opportunities to collaborate with other sectors.
9. focus public discussion on health issues.

THE INTENDED USERS OF THIS REPORT IS TO INFORM:

- CancerCare Manitoba's strategic planning process, and the strategy of our partners including Manitoba Health, Seniors and Active Living, the Regional Health Authorities, and Shared Health.
- evidence-informed decision making at CancerCare Manitoba, and our health policy and service delivery partners including Manitoba Health, Seniors and Active Living, the Regional Health Authorities, and Shared Health.
- the Regional Health Authorities' community and stakeholders.
- our many communities, partners, public, and patients and their loved ones across Manitoba.

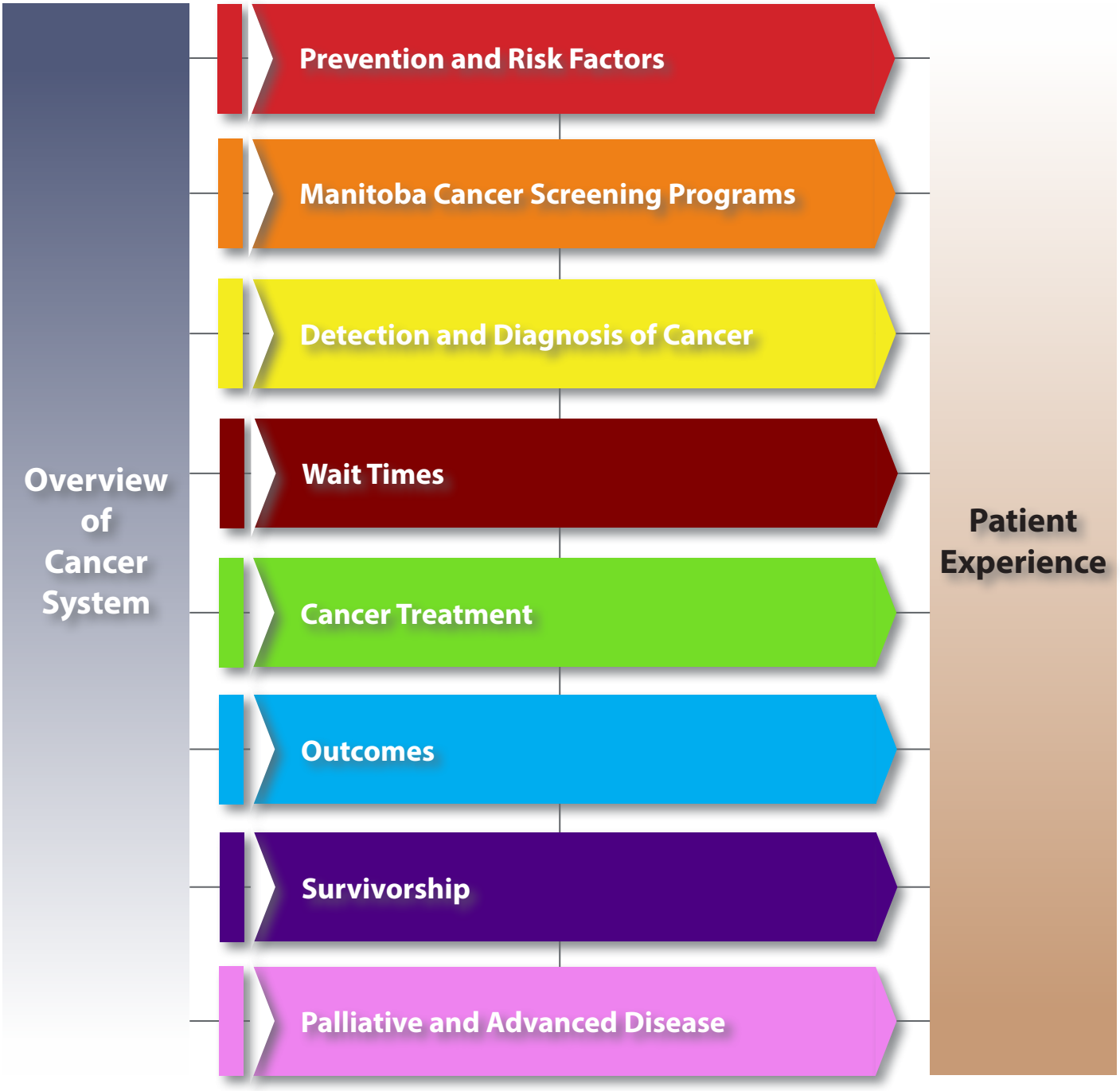
DEVELOPMENT PROCESS:



REPORT GUIDE

Each section of the Manitoba Cancer System Performance Report helps to identify the current state of our cancer care system in Manitoba. We explore the entire continuum of cancer - from prevention and early detection or screening to diagnosis and treatment to outcomes including survivorship and advanced disease. This report will give you a sense of where we have been and where we are going, as well as how we compare to other cancer agencies across Canada and the world. Our intention is to provide a comprehensive snapshot of Manitoba's cancer care system. Find out more in upcoming supplementary reports which will be found online.

FOLLOW THE COLOUR SCHEME AT THE TOP CORNER OF EACH PAGE TO MOVE BETWEEN SECTIONS.
Colours align with those shown in diagram below.



KEY FINDINGS

Important themes we have identified while developing the **2019 Manitoba Cancer System Performance Report:**

THE ANNUAL NUMBER OF NEW CANCER CASES CONTINUES TO GROW. In 2016, 6,481 Manitobans were diagnosed with cancer which is a 25% increase since 1996. The next 20 years appear to change more drastically, with the number of new cancer cases reaching about 10,000 by 2035 (this is an increase of over 50% from 2016). Across Canada, 1 in 2 individuals is expected to be diagnosed with cancer in their lifetime. We know prevention strategies are key to protecting Manitobans from cancer. We are focusing efforts to improve our prevention services with the aim of decreasing the number of Manitobans that ever have to face a cancer diagnosis.

THE FINANCIAL BURDEN OF CANCER ON THE HEALTHCARE SYSTEM CONTINUES TO RISE. Cancer is one of the most costly diseases in Canada and there is genuine concern that resource and cost issues will become unmanageable in the near future.[1,2] In fact, it is expected that oncology costs will rise 7-10% annually with global oncology costs exceeding $150billion by 2020.[3,4]

FINDING CANCER EARLY CAN MEAN MORE EFFECTIVE TREATMENT AND POSITIVE OUTCOMES. Lung cancers are often diagnosed at late stage (stage IV). Across Manitoba, as with the rest of Canada, about 50% of lung cancer cases are diagnosed at late stage with little variation between regions. For other cancers we see regional differences, such as more individuals being diagnosed with late stage colorectal cancer in the Northern Regional Health Authority and more late stage prostate cancer diagnoses in Prairie Mountain Health. By finding these cancers earlier we can improve survival, treatment effectiveness and related costs, and quality of life for people living with cancer in the province.

WAIT TIMES ARE IMPROVING. Median wait times decreased between 2016 and 2017 across many system wait time measures including those during screening (breast screening wait times), diagnostic imaging (for prostate, lymphoma, and colon and rectum), pathology (for prostate, lymphoma, and colon and rectum), referrals to CancerCare Manitoba (for gastrointestinal), and chemotherapy (for lymphoma and cancers overall).

TREATMENTS FOR CANCER HAVE BECOME MORE COMPLEX. Surgery is the most common treatment modality - with over 50% of patients receiving a surgical treatment within one year of diagnosis (compared to systemic therapy at 39% and radiation therapy at 28%). Advancements in eligibility for blood and marrow transplants and identification of cancer biomarkers have increased the complexity of patient care.

OUTCOMES ARE IMPROVING. Each year cancer kills over 2,700 Manitobans, however mortality rates continue to decrease year over year. This means that Manitobans diagnosed with cancer are more likely to survive the disease than ever before. For example, one-year and five-year relative survival is higher in Manitoba for lung cancer than the national estimate, or the estimates seen in several other countries.

MORE PEOPLE ARE LIVING WITH CANCER. Across Manitoba nearly 33,000 people are alive who were diagnosed with cancer in the past 10 years. This number will continue to increase into the future as the number of cancer cases continue to increase but people live longer with the disease and after treatments are completed.

EMOTIONAL SUPPORT. We have heard our patients' needs for emotional support during their experience with cancer. We continue to work towards new and innovative ways to improve our emotional support services. Although the 2016 Ambulatory Oncology Patient Satisfaction Survey (AOPSS) highlighted an urgent need for further targeted improvements, we were happy to see our efforts are paying off with satisfaction scores increasing slowly, but consistently over time. We look forward to evaluating the 2019 AOPSS results to see if we have made further progress.

REGIONAL VARIATION IN THE CANCER EXPERIENCE. We know that Manitobans from different corners of our province have different experiences with cancer. Regional comparisons show that more individuals in the Northern Regional Health Authority (RHA) are diagnosed with late-stage colorectal cancer and more individuals in Prairie Mountain Health are diagnosed with late-stage prostate cancer than any other region. We also recognize that mortality rates are significantly higher in the Northern RHA than the Manitoban estimates. These examples highlight the challenges we continue to face in equitably serving our population.

OVERVIEW OF THE CANCER SYSTEM

In 2001, I lost my husband to colon cancer. And in 2015 I was diagnosed with a gynecological cancer. The overall difference in cancer care resources in those 14 years is absolutely remarkable. From the moment of diagnosis, throughout my surgery and treatment regime, to my aftercare - the physical and emotional support made available to me and my family, as well as continuing educational opportunities and many wellness and prevention initiatives, has far exceeded any hopes or expectations. In my opinion, the "cancer system model" is a beacon of hope to our health care system - one I would love to see replicated for other life - threatening, long-term illnesses, such as addiction and mental illness. Thank you so much CancerCare Manitoba!
- CCMB patient.

CancerCare Manitoba is the provincially mandated cancer agency and is responsible for setting strategic priorities and long-term planning for cancer and blood disorders. The cancer services the organization provides to Manitobans cross the continuum of cancer from prevention and early detection, to cancer screening, to multidisciplinary cancer treatment, and supportive and end-of-life care. These clinical services are provided to both children and adults. CancerCare Manitoba relies on the ongoing support of Manitoba Health, Seniors and Active Living and its close working relationships with regional health authorities to deliver quality cancer services to Manitobans. The financial assistance provided by the donations of Manitobans to the CancerCare Manitoba Foundation is vital to undertaking research and providing quality care to Manitobans.

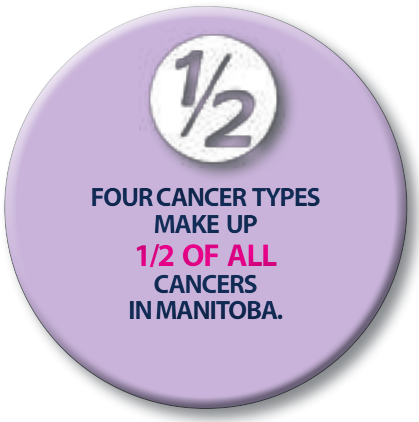
OVERVIEW

Cancer is a major cause of mortality in Manitoba. The information below provides summary statistics for cancer in Manitoba.

Table 1. Summary statistics for cancer in Manitoba.

Number of new cases in 2016	**6,481**
Incidence rate, 2016 (cases per 100,000 per year) *Note: Age-standardized to the 2011 Manitoba population.*	**467.0**
Number of deaths in 2016	**2,766**
Mortality rate, 2016 (deaths per 100,000 per year) *Note: Age-standardized to the 2011 Manitoba population.*	**200.0**
Number of people with cancer alive as of January 1st, 2016 (diagnosed 2006-2015)	**32,756**
1-year relative survival rate, 2014-2016	**77%**
5-year relative survival rate, 2014-2016	**62%**

See technical appendix for data sources and methodological details.



THEN AND NOW: INCIDENCE AND MORTALITY ESTIMATES

The burden of cancer is most often reflected through incidence (new cancer cases) and mortality (deaths). Both can be reported using three measures: the number of cases, the crude rate, or the age-standardized rate. There are indications for using each of these based on the questions asked. For example, the ***number of new cases or deaths*** can offer insight into service and capacity needs of a population and the associated resource allocations required. ***Crude rates*** help us to understand whether there are differences in cancer rates between different populations per capita (e.g., cancer types, regions, etc.) which can help in planning the allocation of resources. Finally, ***age-standardized rates*** remove the effect of age (a strong predictor of cancer) to allow us to compare differences in rates that may be due to other risk factors. It is the best way to understand how the actual risk for cancer or risk of dying from cancer varies across different populations.

Table 2. Incidence and mortality estimates: A comparison of cancer burden in 1996 and 2016.

Cancer	Number of new cases			Crude cancer rate (per 100,000)			Age-standardized incidence rate (per 100,000)		
	1996	2016	%Change	1996	2016	%Change	1996	2016	%Change
All invasive	5,136	6,481	26% increase	453.9	483.9	No Change	507.2	467.0	No Change
Breast	725	873	20% increase	126.5	129.6	No Change	136.9	121.6	-11% decrease
Colorectal	661	848	28% increase	58.4	63.3	No Change	65.0	61.0	No Change
Lung	773	856	11% increase	68.3	63.9	No Change	77.6	61.1	-21% decrease
Prostate	651	728	12% increase	116.6	109.4	No Change	146.5	110.2	-25% decrease
Cancer	**Number of deaths**			**Crude mortality rate (per 100,000)**			**Age-standardized mortality rate (per 100,000)**		
	1996	2016	%Change	1996	2016	%Change	1996	2016	%Change
All invasive	2,445	2,776	13% increase	216.1	206.5	No Change	242.1	200.0	-17% decrease
Breast	213	204	No Change	37.2	30.3	-19% decrease	38.4	27.4	-29% decrease
Colorectal	311	318	No Change	27.5	23.7	-14% decrease	30.9	23.3	-25% decrease
Lung	606	648	No Change	53.6	48.4	-10% decrease	60.7	46.4	-24% decrease
Prostate	166	181	No Change	29.7	27.2	No Change	41.7	31.9	-24% decrease

Colours represent + or - 10% change with red showing areas of negative change (i.e., increase in new cancer cases or deaths) and green showing areas of positive change (i.e., decline in new cancer cases or deaths). Breast cancer data reflects females only. Male breast cancer occurs at a rate of about 1% compared to female breast cancer.
See technical appendix for data sources and methodological details.

TODAY AND TOMORROW

The number of new cancer cases we see each year will increase to about 10,000 by 2035.

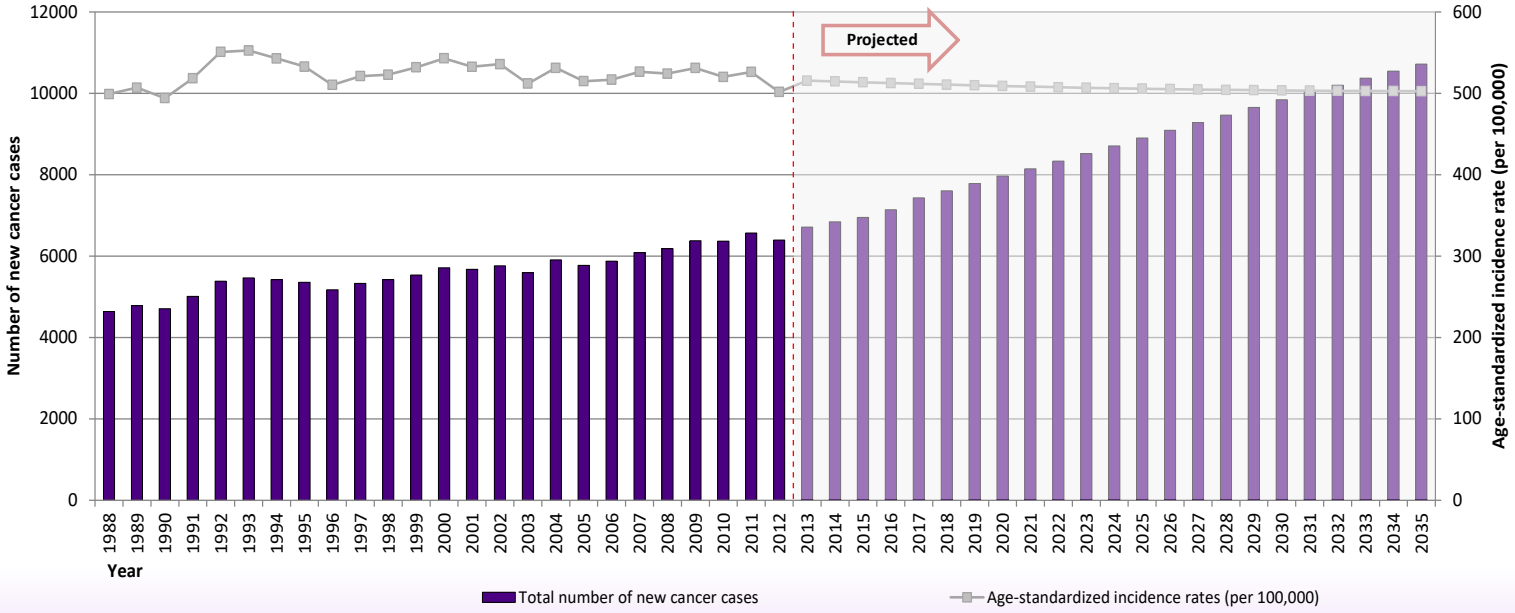
Cancer Incidence and Mortality in Manitoba

Cancer is a significant health concern for Manitobans. In 2016, nearly 6,500 patients received a new cancer diagnosis, and over 2,700 Manitobans died of the disease. The increasing incidence of new cases each year, and the fact that many patients now survive longer, means that ***the number of people living with cancer is greater than ever before.*** Recent data show that nearly 33,000 Manitobans are living with a cancer diagnosed in the previous 10 years. Similar to other Canadian provinces, the number of new cancer diagnoses are expected to rise by about 2% per year over the next 10 to 20 years. This increase is due largely to Manitoba's aging population, given that the incidence rate is steady and population growth has historically been flat.

Nearly 1 in 2 Canadians is expected to be diagnosed with cancer in their lifetime.[5]

1 in 4 Canadians is expected to die from cancer.[5]

Figure 1. Actual and projected cancer incidence in Manitoba, 1988-2035.

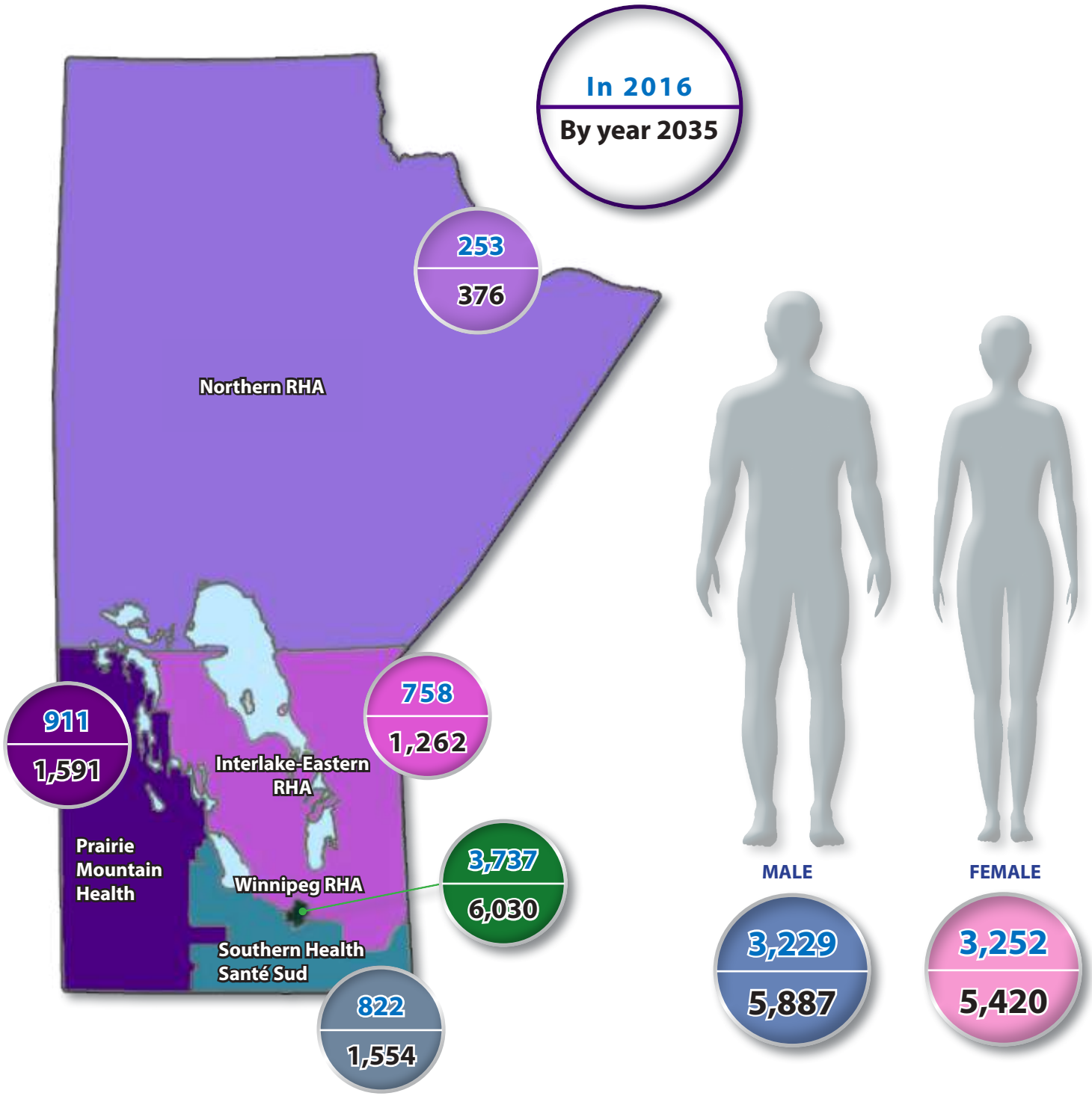


See technical appendix for data sources and methodological details.

SUSTAINABILITY OF OUR CANCER CARE SYSTEM

In Canada, cancer has become a serious health concern with one in every two people expected to be diagnosed with the disease in their lifetime. We expect the number of new cancer cases in Manitoba to increase by over 50% by 2035 (compared to 2016). This will put a considerable strain on the Manitoba health care system.

Figure 2. The number of individuals diagnosed with a new cancer in 2016 and 2035 by Regional Health Authority (RHA) and sex.



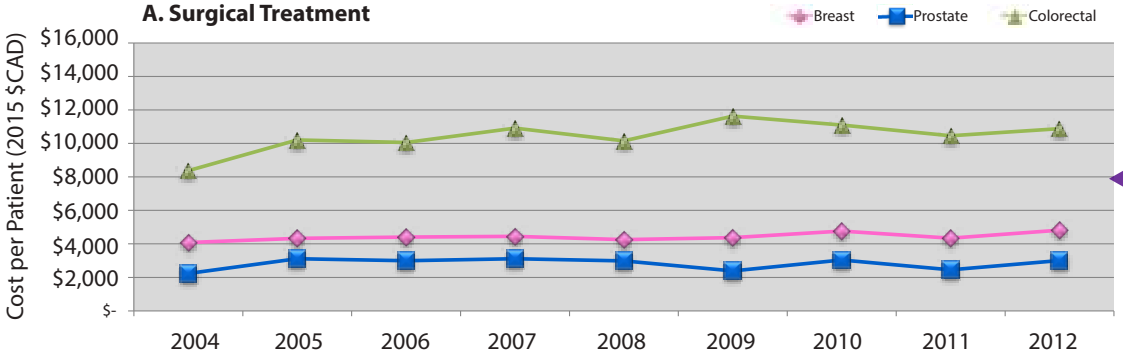
See technical appendix for data sources and methodological details.

FINANCIAL BURDEN OF CANCER IN MANITOBA

Cancer is one of the most costly diseases in Canada and there is genuine concern that resource and cost issues will become unmanageable in the near future.[1,2]

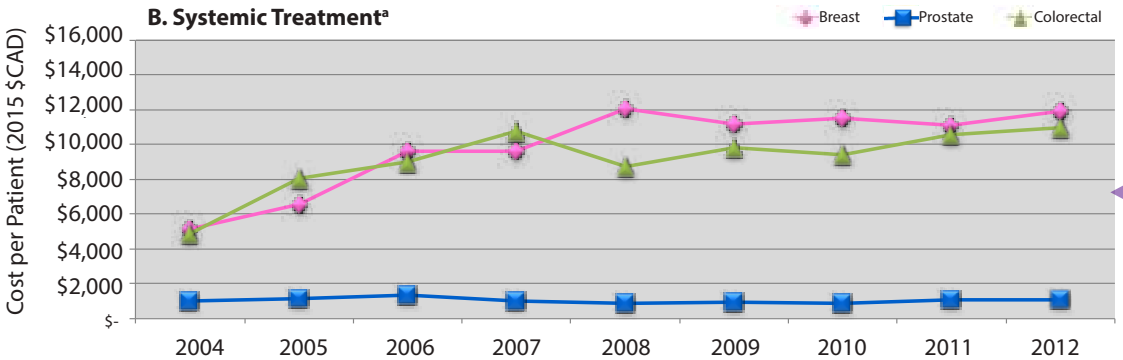
It is expected that oncology costs will rise 7-10% annually with global oncology costs exceeding $150 billion by 2020.[3,4] With increasing pressures on the cancer care system we will continue to face financial constraints and resource shortages as we aim to provide quality care to all Manitobans. Understanding current and predicted cost estimates is critical to future planning and provision of cost-effective cancer care. Below we highlight Manitoba costing trends for 2004 to 2012 for breast, prostate, and colorectal cancers described in a study exploring utilization and cost trends across Canada as part of a national cancer costing initiative.[10] ***Costs generally increase over time.*** A secondary study is underway analyzing more recent years of data and including those who died within the first year of diagnosis. We hope to have results to this study available soon.

Figure 3. Mean cost per patient in Manitoba one year after diagnosis for surgical, systemic therapy, and radiation therapy treatments over time, 2004-2012, in 2015 Canadian dollars ($CAD). This includes treatment-related costs only.



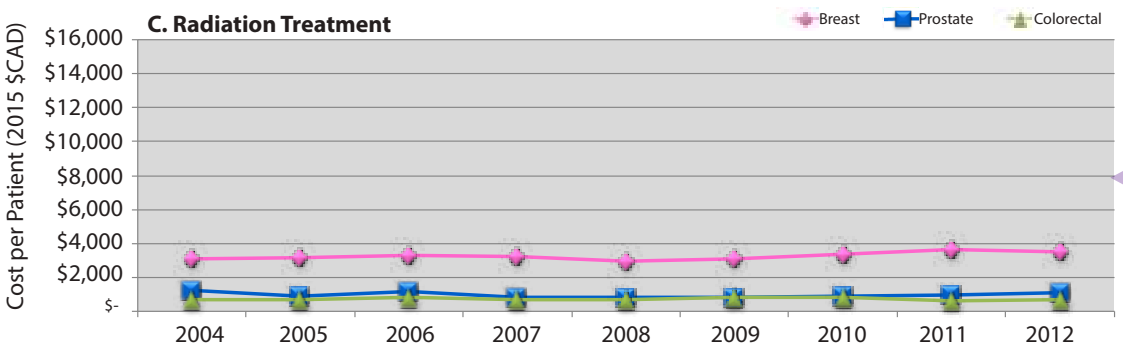
Costs of surgical care have increased over time for breast and colorectal cancers.

Costs are **highest** for patients diagnosed with colorectal cancer. In 2012, this cost was nearly $11,000 per patient.



Costs of systemic treatment have increased over time for breast and colorectal cancers.

Costs are **highest** for patients diagnosed with breast cancer. In 2012, this cost was nearly $12,000 per patient.



Costs of radiation treatment have remained fairly stable over time.

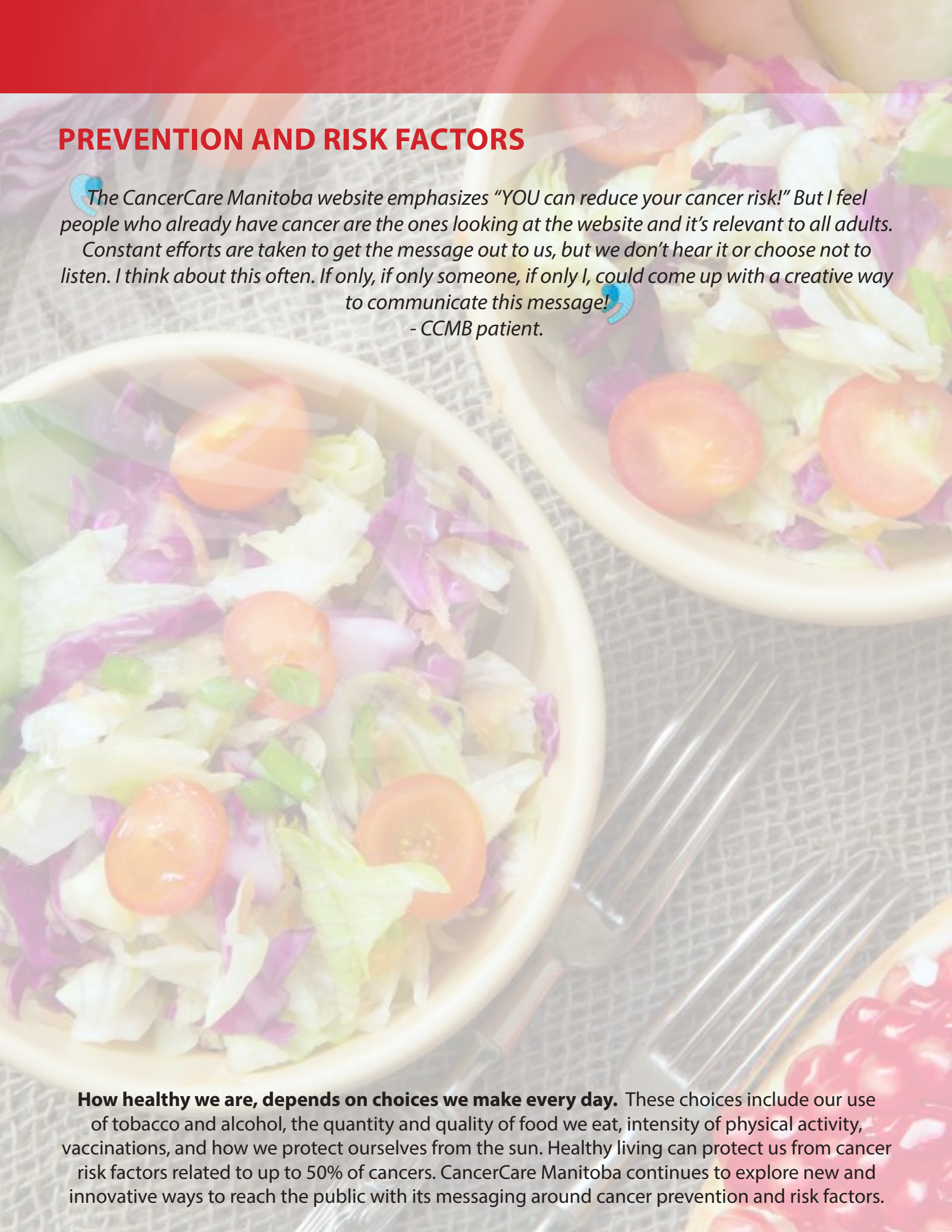
Costs are **highest** for patients diagnosed with breast cancer. In 2012, this cost was nearly $3,500 per patient.

[a] Systemic therapy includes chemotherapy drugs including hormonal therapies, and oral cancer drugs.
Note: *Often the first year after cancer diagnosis is a period of intensive treatment and high cost.[10-13] This analysis does not show the cost per patient for those who died within the first year of diagnosis and therefore may underestimate the true cost of care. Caution is recommended when interpreting these figures. Data refelct treatment utilization and cost only.*
See technical appendix for data sources and methodological details.

PREVENTION AND RISK FACTORS

"The CancerCare Manitoba website emphasizes "YOU can reduce your cancer risk!" But I feel people who already have cancer are the ones looking at the website and it's relevant to all adults. Constant efforts are taken to get the message out to us, but we don't hear it or choose not to listen. I think about this often. If only, if only someone, if only I, could come up with a creative way to communicate this message!"

- CCMB patient.



How healthy we are, depends on choices we make every day. These choices include our use of tobacco and alcohol, the quantity and quality of food we eat, intensity of physical activity, vaccinations, and how we protect ourselves from the sun. Healthy living can protect us from cancer risk factors related to up to 50% of cancers. CancerCare Manitoba continues to explore new and innovative ways to reach the public with its messaging around cancer prevention and risk factors.

PREVENTION STRATEGIES CAN HELP TO REDUCE CANCER RISK

Evidence shows that up to 50% of cancers could be prevented through lifestyle changes.[7-9] In fact, new Canadian research has shown that about 70,200 cancer cases were attributable to lifestyle and environmental factors in 2015, as well as infections.[7] In Manitoba, at least 2,500 cancer cases could have been prevented in 2015.[7] These cancers can be prevented through healthy living, risk reduction interventions, policies, and public health campaigns.[7] The researchers have projected that by 2042 over 100,000 cancers will be diagnosed in Canada that are related to preventable risk factors if there are no changes to risk reduction strategies. For ideas on what you can do to reduce your risk of cancer visit the Risk Reduction page on the CancerCare Manitoba Foundation website.

Table 3. Summary of cancer risk factors.

	Manitoba			How do we compare to the rest of Canada?	Why is this important?
	Past	Current	Trend		
INCREASE YOUR CANCER RISK					
OBESITY % of adults (ages 18+) with Body Mass Index classified as "obese". Based on self-reported height and weight	21.8%	**22.2%**	→	Prevalence of obesity in Manitoba is slightly lower than the national average of 26.5% (2016).[18]	**Obesity is one of the leading factors related to cancer development.**[8] The World Health Organization estimates diet to be directly related to 30-40% of cancer cases in men and 60% of cancer cases in women.[16] Risk of cancer will continue to increase as national obesity rates rise.[8,17]
SMOKING % of daily current smokers (age 12+)	19.0%	**18.6%**	→	Manitoba smoking rates are higher than the national average of 12.0% (2016). This equates to about 3.7 million Canadians who currently smoke tobacco.[18]	**Smoking is linked to mortality and chronic disease.** 1 in 5 deaths in Canada are due to tobacco use. Smoking causes cancer of the lung, larynx, and esophagus, as well as heart disease, emphysema, and ulcers.[8,16,17] The chance of being diagnosed with or dying from lung cancer decreases by 30-50% within 10 years of quitting.[8,17]
ALCOHOL % consuming more than 5 alcoholic drinks on one occasion within the past week (age 12+)	26.1%	**22.8%**	↓	Excessive alcohol consumption is higher in Manitoba than the national average of 19.0% (2016).[18]	**Excessive alcohol consumption leads to increased risk for cancer.** Alcohol consumption is linked to development of cancers of the oral cavity, pharynx, larynx, esophagus, colorectum, female breast, and liver.[8,9,15,16] Alcoholic drinks are classified as a Group 1 carcinogen by the International Agency for Research on Cancer.
REDUCE YOUR CANCER RISK					
FRUITS & VEGETABLES % consuming 5 or more servings of fruits and vegetables per day (ages 12+)	32.4%	**24.9%**	↓	Fruit and vegetable intake in Manitoba is lower than the national average of 30.0% (2016).[18]	**Eating well can reduce overall cancer risk.** A high intake of green and yellow vegetables and fruits is linked to a reduced risk for lung, colon, esophagus, and stomach cancers.[8,9] Diets high in plant foods can protect against cancers of the endometrium and colon.[19]
PHYSICAL ACTIVITY Derived variable for persons age 18+ who were categorized as moderately active and active based on the number of minutes of moderate to vigorous activity done in a week.	-	**79.0%**	Cannot be compared*	The proportion of Manitobans who are physically active is similar to the national rate.[18]	**Regular exercise can decrease the risk of developing cancer.** Physical activity lowers the risk of developing colon cancer and may lower the risk for breast, prostate, stomach, lung, liver, and endometrial cancers.[8,9,19]
HPV VACCINATION % girls who received at least two doses of the HPV vaccine by age 17.	56.0%	**62.6%**	↑	The provincial/territorial immunization uptake for 2 doses based on the most recent data ranges from 59-92% (Manitoba: 62%).[a] A national target has been set to vaccinate 90% of girls in Grade 6 by 2025. The HPV vaccination program expanded to include Grade 6 boys in September 2016.	**HPV vaccination can protect you from HPV related cancers.** The HPV vaccine provides protection against certain types of HPV that can cause genital warts, cervical cancer, as well as cancers of the mouth, throat, anus, vulva, vagina and penis.[20]

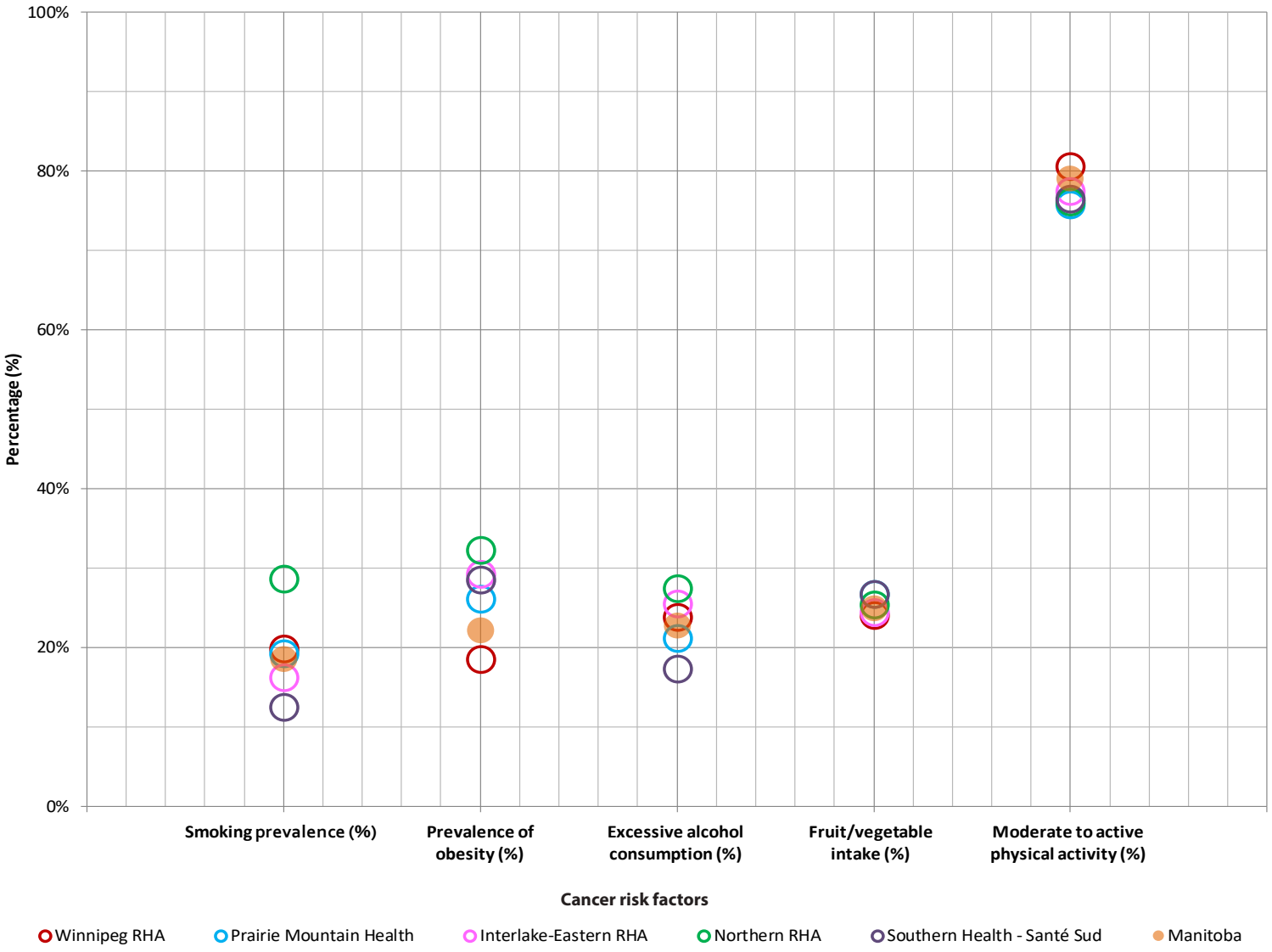
Trend arrow is based on + or - 10% of the past value. Arrow colour indicates if the trend is good (green), neutral (yellow) or needs to improve (red). *For some indicators no direct comparison is possible due to substantial change to questionnaire and methodology during 2015 survey redesign. Past estimates for indicators from the Canadian Community Health Survey are for a pre-2015 grouping (2009-2014) in order to support the greatest amount of disaggregation after implementation of a new collection strategy, application of a sample from two different frames, and major content revisions. The current estimates for the same indicators are for 2015/16. The HPV indicator past and current estimates reflect vaccinations completed for the 1998 birth cohort between 2009-2015 (past) and vaccinations completed for the 1999 birth cohort between 2010-2016 (current). [a] Canadian Partnership Against Cancer. (2018). Cervical cancer screening in Canada: Environmental scan. Toronto, ON: Canadian Partnership Against Cancer; 2018. *See technical appendix for data sources and methodological details.*

Green = trend is good
Yellow = trend is neutral
Red = trend needs to improve
Up = trend is increasing by 10% or more
Horizontal = no change
Down = trend is decreasing by 10% or more

REGIONAL VARIATION IN RISK FACTORS

The figure below shows regional variation across key cancer risk factors.

Figure 4. Regional variation in cancer risk factors, across Manitoba for 2015-2016, data from the Canadian Community Health Survey.



See technical appendix for data sources and methodological details.

Smoking rates are slowly decreasing across Manitoba and Canada. However, tobacco smoking remains a major health concern due to the substantial impact it has on health and life expectancy.

High rates of obesity are a public health concern in Manitoba and the rest of Canada.

Tobacco smoking and a lack of physical activity were associated with the highest proportion of cancer cases in the Canadian Population Atrributable Risk of Cancer (ComPARe) study released May 2019 .[7]

YOU
can reduce your cancer risk!

1. **NOURISH.** A balanced diet with plenty of fruits and vegetables will help you maintain a healthy weight. Every year about 1,000 Manitobans are diagnosed with a cancer related to an unhealthy diet and another 400 of all cancers diagnosed annually in Manitobans are weight-related. Limit alcohol to less than one drink per day for women and less than two drinks per day for men.
2. **CLEAR.** Don't smoke, and avoid secondhand smoke. More than 800 Manitobans die annually because they smoked or were exposed to secondhand or "passive" smoke. Eliminating smoking is the single leading action you can take to prevent cancer.
3. **MOVE.** Being active is important to staying healthy and helping to maintain a healthy body weight. It can also reduce stress, increase energy levels, and improve your outlook on life.
4. **PROTECT.** Protect yourself and your family from exposure to UV (ultraviolet) rays via sun or tanning beds. The HPV vaccination provides protection against several cancers caused by the human papillomavirus (HPV). The HPV vaccination is now available to all grade 6 girls and boys through the Manitoba vaccination program.
5. **CHECK.** Regular screening tests and visits to your doctor and dentist can help find cancer at an early stage. The earlier cancer is found, the more successful the treatment is likely to be.

CancerCare Manitoba FOUNDATION
All funds raised stay in Manitoba.

Your choices **TODAY** can affect **TOMORROW.**

(for more information visit the CancerCare Manitoba Foundation website: https://www.cancercarefdn.mb.ca/risk-reduction/)

LOCAL ACTION!

CancerCare Manitoba Foundation's *Kick Cancer* risk reduction campaign highlighted steps we can all take to reduce our cancer risk including Eating Well and Shaping Up. The current risk reduction campaign, *Protect Your Tomorrows*, keeps the focus on these lifestyle choices and reframes them with new updated messaging of NOURISH and MOVE.

1 TOBACCO REDUCTION

CancerCare Manitoba (CCMB) supports tobacco reduction policies and activities. Here are some of the ways we help to reduce tobacco use:

- The Quit Smoking Program was initiated in 2012. This comprehensive clinical service is offered free of charge to patients living with cancer and their loved ones. It is also available to CCMB staff. Since inception the program has seen 1,119 participants. Of those who continued with the program 26% reduced their tobacco use and 48% quit smoking!
- The CancerCare Manitoba Foundation promotes Be Smoke Free as part of *Protect Your Tomorrows* Risk Reduction campaign.
- To help reduce tobacco use, CCMB partners with other organizations such as MANTRA (Manitoba Tobacco Reduction Alliance).
- Previously, CCMB developed promotional materials to educate the public about the benefits of household and vehicle smoking bans.

of program participants have successfully reduced or quit smoking!

2 MAINTAINING HEALTHY WEIGHT

With help from our partners we are raising the profile of healthy living in Manitoba including maintaining a healthy weight and reducing obesity. Some successes include:

- Registered Dietitians and nutritional counselling are available to all patients through Patient and Family Support Services to discuss topics such as unwanted weight gain, healthy eating or specific dietary needs after cancer treatments.
- During the CancerCare Manitoba Foundation's Challenge for Life event we ask participants to challenge themselves to set personal health and fitness goals!
- Cancer survivors can access an education and exercise program after treatment which is offered through a partnership between CCMB Patient and Family Support Services and the Reh-Fit Centre.

MANITOBA CANCER SCREENING PROGRAMS

I think fear of the unknown keeps a lot of people from doing the test. I've talked to people who don't want to know, but they're eventually going to know and it's going to be too late. Having cancer is a bigger pain in the butt than taking this test. I just wish people would get checked and get checked early.
- CCMB patient.

CancerCare Manitoba's Screening Programs offer evidence-based organized screening for breast, cervical, and colorectal cancer. Cancer screening means checking for cancer before any signs or symptoms appear. It is beneficial as it enables us to detect cancer early leading to improved survival and fewer complications associated with advanced disease.

CANCERCARE MANITOBA'S CANCER SCREENING PROGRAMS

What is cancer screening and why is it important?

Cancer screening means checking for cancer before any signs or symptoms appear. Individuals in Manitoba may be eligible for cancer screening tests to help find breast, cervical, or colorectal cancer at an early stage. Research shows that we are more likely to find cancers early, before they advance to late stage cancer, with effective evidence-based cancer screening.[21] The benefits of screening allow us to not only detect cancer at an earlier stage, but also improve chances of survival and prevent complications associated with advanced disease.[21]

OUR GOAL IS TO DECREASE DEATHS FROM BREAST, CERVIX AND COLON CANCER

CancerCare Manitoba Screening Programs

The CCMB Screening Programs include three comprehensive organized cancer screening programs:

- **BreastCheck**, **CervixCheck**, **ColonCheck**

All three programs operate population-based registries which allow us to:

- ✓ Identify individuals eligible for cancer screening
- ✓ Send letters of invite, recall, reminder, and result notifications
- ✓ Monitor data and evaluate program operations and population health outcomes

How do screening programs look out for Manitobans?

- ✓ We provide or coordinate all cancer screening tests available to Manitobans
- ✓ We strategically recruit eligible Manitobans through correspondence letters and notifications, as well as through various health promotion activities
- ✓ We partner with healthcare providers to increase access to cancer screening services across the province with particular attention to underserved individuals
- ✓ We work with healthcare providers to ensure that individuals with abnormal screening results get the follow-up care they need
- ✓ We develop and share information and resources to the public and healthcare providers about cancer screening
- ✓ We continuously evaluate our programs to ensure they are high quality
- ✓ We facilitate informed decision-making regarding other potential screening programs (lung, prostate, etc.) and new technologies (HPV testing, FIT testing, etc.)
- ✓ We keep up to date with policy implementation, national recommendations, and evidence

IMPACT OVER THE LAST 5 YEARS (April 1, 2013 to March 31, 2018):

BreastCheck

Women Ages 50-74

BreastCheck sent **342,683** invitation and recall letters to Manitobans.

223,012 mammograms were completed at BreastCheck sites and on the mobile.

1,164 program breast cancers were detected.

CervixCheck

Women Ages 21-69

CervixCheck sent **265,819** invitation and recall letters to Manitobans.

CervixCheck sent **24,838** fail-safe letters to Manitobans and their providers.

629,062 Pap tests and **48,313** colposcopies were registered in the CervixCheck Registry.

ColonCheck

Manitobans Ages 50-74

ColonCheck sent **282,646** FOBT kits to Manitobans.

127,898 ColonCheck FOBT kits were completed by Manitobans.

5,052 Manitobans were referred for follow-up testing after an abnormal FOBT.

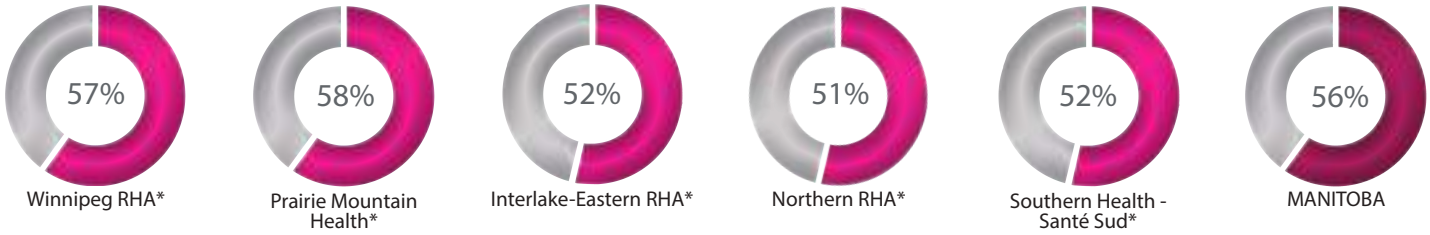
See technical appendix for data sources and methodological details.

MANITOBA CANCER SCREENING RATES:

BreastCheck

SCREENING RATES:

Figure 5. Percentage of Manitoban women 50-74 years of age who had a screening or diagnostic mammogram within the last two years, January 1, 2016-December 31, 2017.



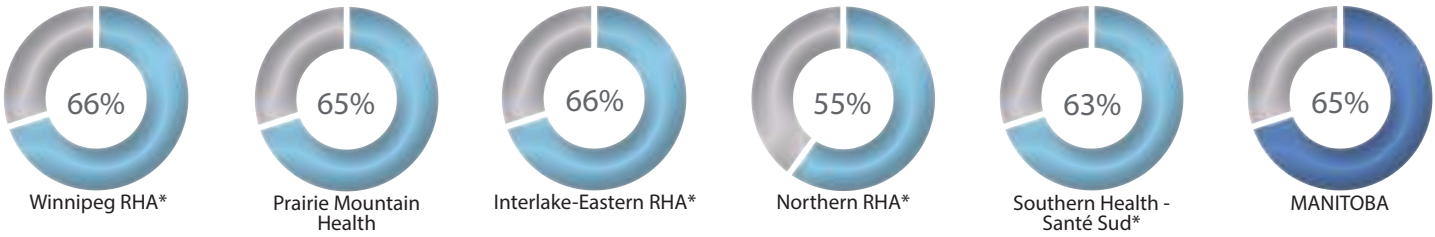
**Significantly different from Manitoba*
See technical appendix for data sources and methodological details.

In 2017, 78.5% of women aged 50-74 reported having a mammogram in the past three years in the Canadian Community Health Survey.[22] The self-reported rate for Manitoba was 72.3%.[22]

CervixCheck

SCREENING RATES:

Figure 6. Percentage of Manitoban women 21-69 years of age who had a Pap test within the last three years, January 1, 2015-December 31, 2017.



**Significantly different from Manitoba*
See technical appendix for data sources and methodological details.

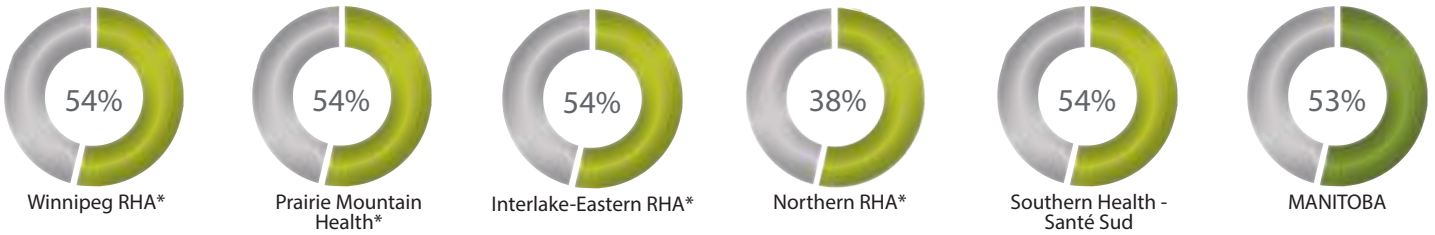
In 2017, 74.0% of women aged 25-69 reported having a Pap test in the past three years in the Canadian Community Health Survey.[22] The self-reported rate for Manitoba was 81.7%.[22]

ColonCheck

SCREENING RATES:

Figure 7. Percentage of Manitobans 50-74 years of age who are up to date on colon cancer screening, January 1, 2016-December 31, 2017.

Up to date for screening describes individuals 50-74 years who report having completed a fecal test (ColonCheck FOBT, ColonCheck FiT, or Other FOBT) in the past two years and/or a colonoscopy/sigmoidoscopy in the last five years. There is no national target for colon cancer screening.



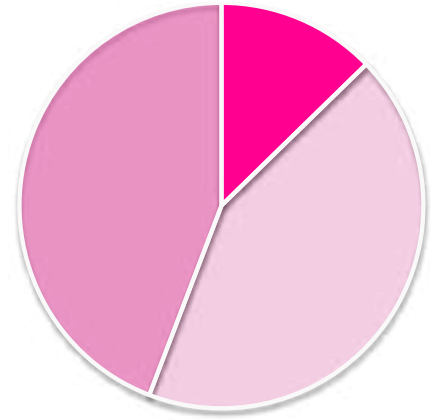
**Significantly different from Manitoba*
See technical appendix for data sources and methodological details.

In 2017, 40.6% of Canadians aged 50-74 reported having a fecal test in the past two years in the Canadian Community Health Survey.[22] The self-reported rate for Manitoba was 53.0%.[22]

BREAST CANCER SCREENING IN MANITOBA - BreastCheck

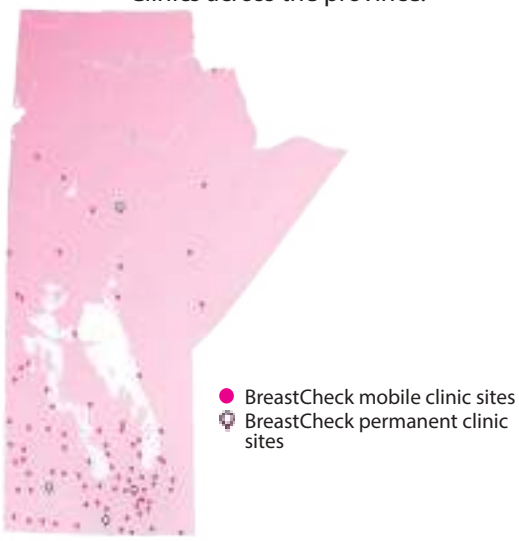
Breast cancer is the second leading cause of cancer death for women in Manitoba. About 900 women in Manitoba are diagnosed every year, and approximately 200 die from the disease.[23] Routine mammograms may find breast cancer 2 to 3 years before it can be felt, reducing breast cancer mortality by up to 40%. BreastCheck was established in Winnipeg and Brandon in 1995, followed by locations in Thompson (1997) and Boundary Trails (2003). In 1998, a mobile program was created to provide mammograms at 90 sites throughout Manitoba.

Figure 8. Percentage of Manitoba women aged 50-74, by mammogram status, 2016-17.



See technical appendix for data sources and methodological details.

CancerCare Manitoba provides Mammogram Clinics across the province.



Over a two year period of January 1st, 2014 to December 31st, 2015 BreastCheck facilitated follow-up of **4,385** abnormal mammogram results. This accounted to about **5%** of all screening mammograms. All abnormal mammograms are referred for further testing, including diagnostic mammograms or ultrasounds. Most women (89.2%) requiring further testing had a benign outcome.

BreastCheck Screening Guidelines identify a 70% target for mortality benefit.
To reach this target, we would need to provide approximately 67,000 appointments each year.

Nearly **43,000** mammogram appointments are completed each year by BreastCheck.

Over **900** additional mammograms were completed in 2017 to women outside screening eligibility (under age 50 and over age 75).

In 2017, **2,451** appointments were lost due to 'no shows'.

There were over **7,900** mobile appointments in 2017.

Most women age 50 to 74 years of age should have a screening mammogram every 2 years. Trans men and women may also need regular mammograms.

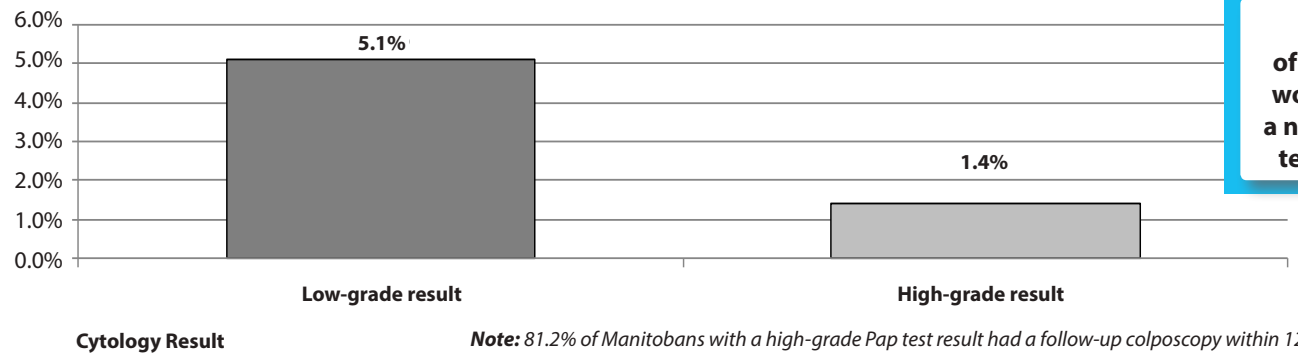
CERVICAL CANCER SCREENING IN MANITOBA - CervixCheck

Cervical cancer is the 13th most commonly diagnosed cancer in Canada. In Manitoba about 50 women are diagnosed each year, and 20 die from the disease.[5] Yet, it is the most preventable form of cancer.[7] The goal of CervixCheck is to decrease cervical cancer incidence and mortality by increasing access to appropriate cervical cancer screening for Manitoba women. The program operates a registry of all Pap tests, colposcopy and biopsy results, facilitates awareness and education about the importance of cervical cancer screening, works with health care providers to increase screening access, and conducts quality assurance.

Promotion and recruitment activities target those who are unscreened in Manitoba and are therefore at greatest risk for developing cervical cancer.

Figure 9. Percentage of women (21-69 years of age) who had an abnormal Pap test result, 2015-2017 (n=16,919).

Note: *low-grade results include Pap test results identified as atypical squamous cells of undetermined significance (ASC-US) or low-grade squamous intraepithelial lesion (LSIL); high-grade results are identified as atypical squamous cell, cannot rule out high-grade (ASC-H), atypical glandular cells (AGC), or high-grade squamous intraepithelial lesion (HSIL) or more severe.*



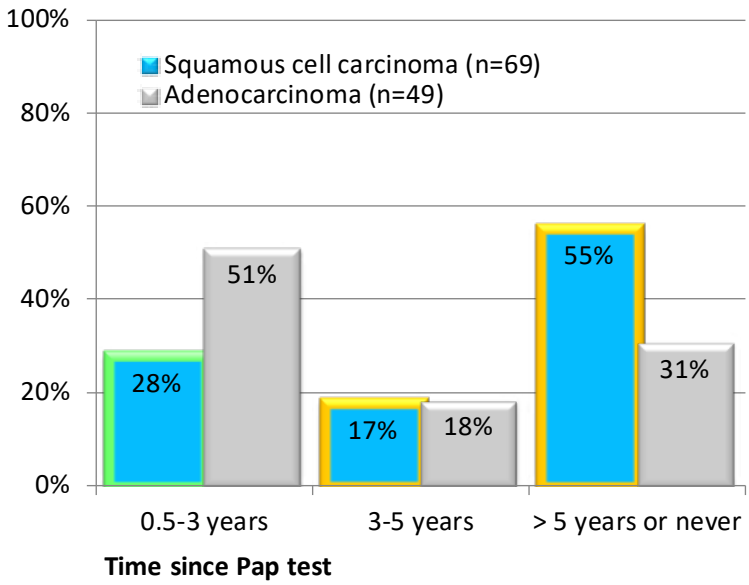
90% of screened women had a normal Pap test result.

Note: *81.2% of Manitobans with a high-grade Pap test result had a follow-up colposcopy within 12 months.*

See technical appendix for data sources and methodological details.

There are two types of cervical cancer - squamous cell carcinoma of the cervix and adenocarcinoma.

Figure 10. Percentage of Manitobans (25-69 years of age) diagnosed with invasive cervical cancer by time since last Pap test, 2015-2017.



When the Pap test is NOT effective: Nearly 30% of Manitobans who were diagnosed with squamous cell carcinoma were routinely screened according to the latest cervical cancer screening recommendations. Unfortunately, this can happen when the Pap test fails to detect precursors to cancer or when individuals do not receive the follow-up care they require after an abnormal Pap test. Evidence shows that the HPV test, an alternative to the Pap test, is much better at detecting this type of cancer.

Poor Adherence to Screening Guidelines: Over 70% of Manitobans who were diagnosed with squamous cell carcinoma were unscreened. These individuals either:

- are more recently overdue for their Pap test (3-5 years),
- had their last Pap test more than 5 years ago,
- had never had a Pap test,
- had a Pap test during the 6 months prior to diagnosis (which is indicative of screening for diagnostic rather than screening purposes)

These reasons highlight the importance of reaching underscreened populations to improve screening rates across the province.

Adenocarcinoma: Adenocarcinomas are a more rare type of cervical cancer. Unfortunately, the Pap test is not good at detecting this type of cancer. Evidence shows that the HPV test, an alternative to the Pap test, is much better at detecting adenocarcinomas of the cervix

Note: > 5 years or never: *This grouping includes Manitobans who a) had their last Pap test more than 5 years ago, b) had never had a Pap test, c) had a Pap test during the 6 months prior to diagnosis which is indicative of screening for diagnostic rather than screening purposes, or d) incomplete records.*
See technical appendix for data sources and methodological details.

Most women age 21-69 who have ever had sexual contact should have a Pap test every 3 years. Trans men and women may also need regular Pap tests.

COLON CANCER SCREENING IN MANITOBA - ColonCheck

Colorectal cancer is one of the leading causes of cancer death in Manitoba. The good news is that early detection reduces mortality.[24] Established in 2007, ColonCheck is Manitoba's population-based colorectal screening program. ColonCheck mails home screening tests (fecal occult blood tests or FOBT) to eligible Manitobans who are 50-74 years of age. The tests are completed at home and mailed to the lab for analysis. Individuals with normal test results are recalled for screening in two years if they are still eligible, and individuals with abnormal (positive) test results are referred for colonoscopy.

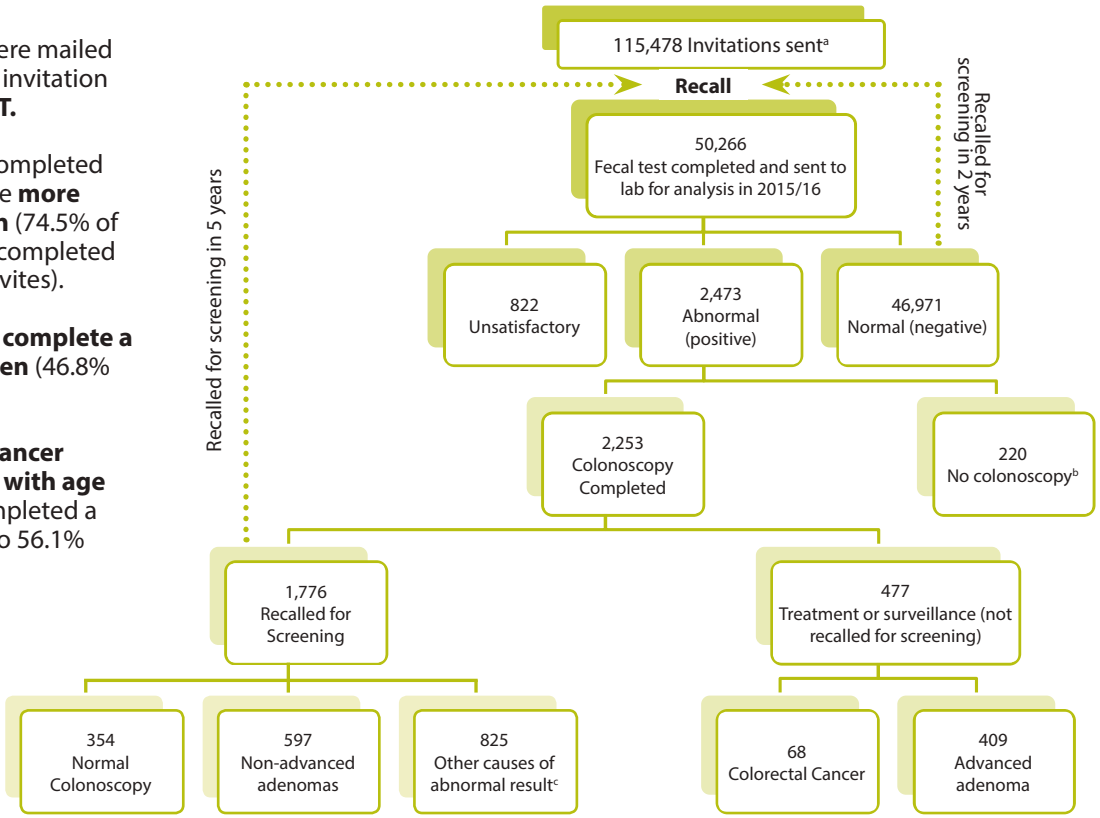
Figure 11. Flow chart highlighting ColonCheck participation and follow-up, 2016-17.

42.4% of Manitobans who were mailed a colorectal cancer screening invitation **complete the enclosed FOBT.**

Men and women who have completed a screening test in the past are **more likely to complete one again** (74.5% of invitations sent to recalls are completed compared to 22.0% of new invites).

Women were more likely to complete a FOBT screening test than men (46.8% compared to 37.9%).

Participation in colorectal cancer screening tends to increase with age (29.1% of 50-54 year olds completed a mailed invitation compared to 56.1% of 70-74 year olds).



[a]Invitations sent includes FOBT kits mailed to elgibile Manitobans 50-74 years of age. This is a separate count to the other values shown in the flow chart. [b]Patient medically unsuitable for colonoscopy, colonoscopy refused by patients, or patient lost to follow-up. [c]Other conditions that may have been the cause of the positive FOBT results, e.g., hemorrhoids, diverticula, anal fissures, other cancers. This category may also include cases where there is no final result available in the ColonCheck registry or where the result is pending. Note: Cancers identified as of April 11, 2019. This flow chart reflects FOBTs completed between January 1, 2015 - December 31, 2016 which allows ample time for follow-up and final diagnoses. A fecal test may include a fecal occult blood test (FOBT) or fecal immunochemical test (FIT). See technical appendix for data sources and methodological details.

What ColonCheck Does

Increase colon cancer screening rates by mailing screening invitations and test kits, sending reminders, working with primary care providers, and increasing education about colon cancer.

Coordinate follow-up of ColonCheck screening tests, including sending test results, scheduling diagnostic testing (colonoscopy), and providing pre-colonoscopy assessments.

Collaborate with various partners to improve operations, increase awareness, decrease overscreening, and reduce mortality from colorectal cancer.

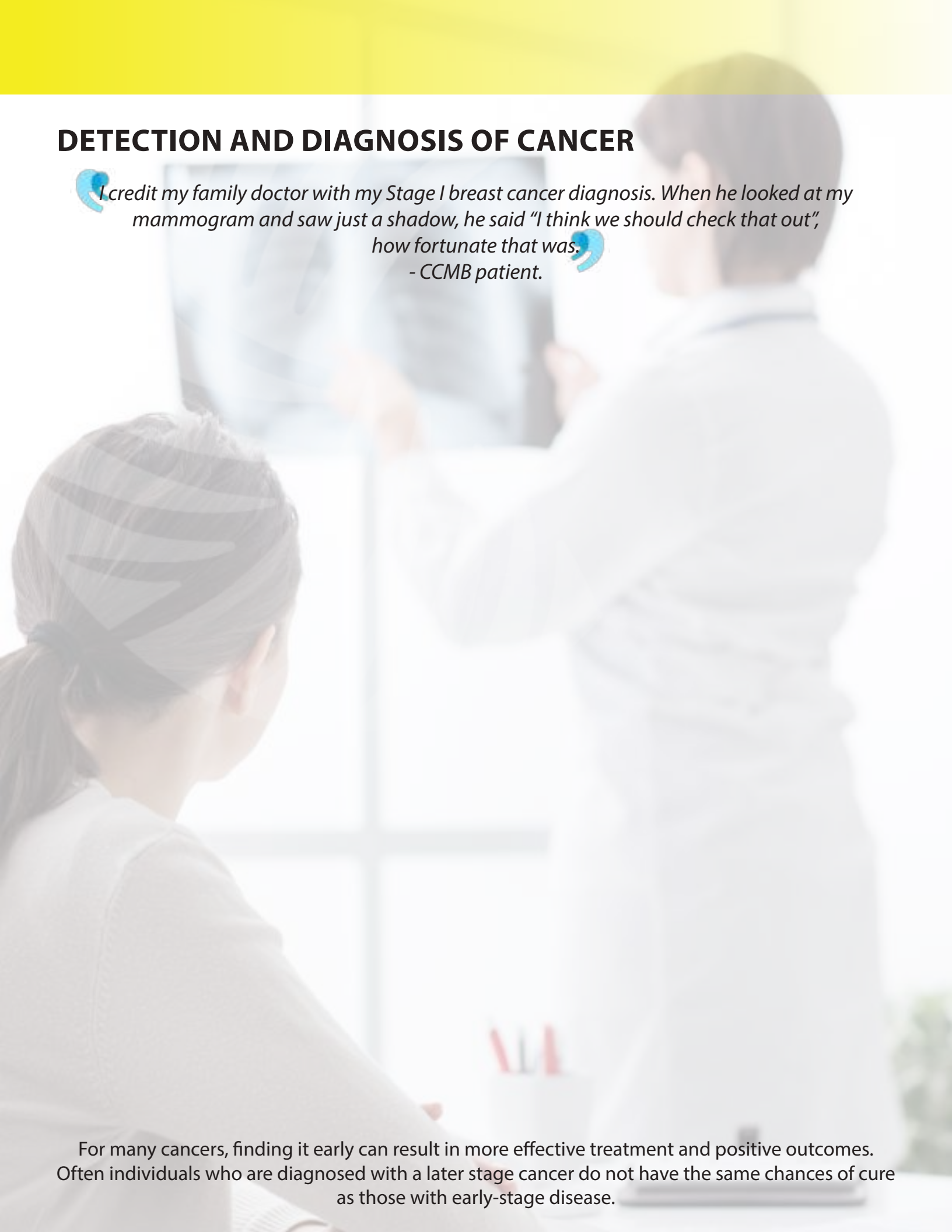
Manage information to identify individuals who are eligible for screening and to support program operations and evaluation.

Incorporate evidence-based technologies to help us provide Manitobans with the highest quality of colorectal screening. We are currently working to implement Fecal Immunochemical Test (FIT) in Manitoba as a safe, user-friendly, and more accurate test compared to the current type of FOBT used.

ColonCheck recommends most men and women age 50-74 do a home screening test (stool test) every two years.

DETECTION AND DIAGNOSIS OF CANCER

"I credit my family doctor with my Stage I breast cancer diagnosis. When he looked at my mammogram and saw just a shadow, he said "I think we should check that out", how fortunate that was."
- CCMB patient.



For many cancers, finding it early can result in more effective treatment and positive outcomes. Often individuals who are diagnosed with a later stage cancer do not have the same chances of cure as those with early-stage disease.

NUMBER OF NEW CANCER CASES

Incidence tells us how many new cases of cancer are diagnosed within a given time frame. The table below shows the average number of cancer cases seen each year, as well as a list of the most common cancers diagnosed. We also show age-standardized incidence rates (ASIR). Age-standardization allows us to compare rates between different populations even if they have different age distributions. This is particularly important because cancer is more common in older adults and one population may appear to have a higher rate of cancer simply because they have more people who are older, not because they are unhealthier or exposed to risk factors more than another population. We select a standard population and produce incidence rates for each population based on this standard. In this way, the ASIR provides a measure of how many new cancer diagnoses we saw out of every 100,000 Manitobans, accounting for age differences.

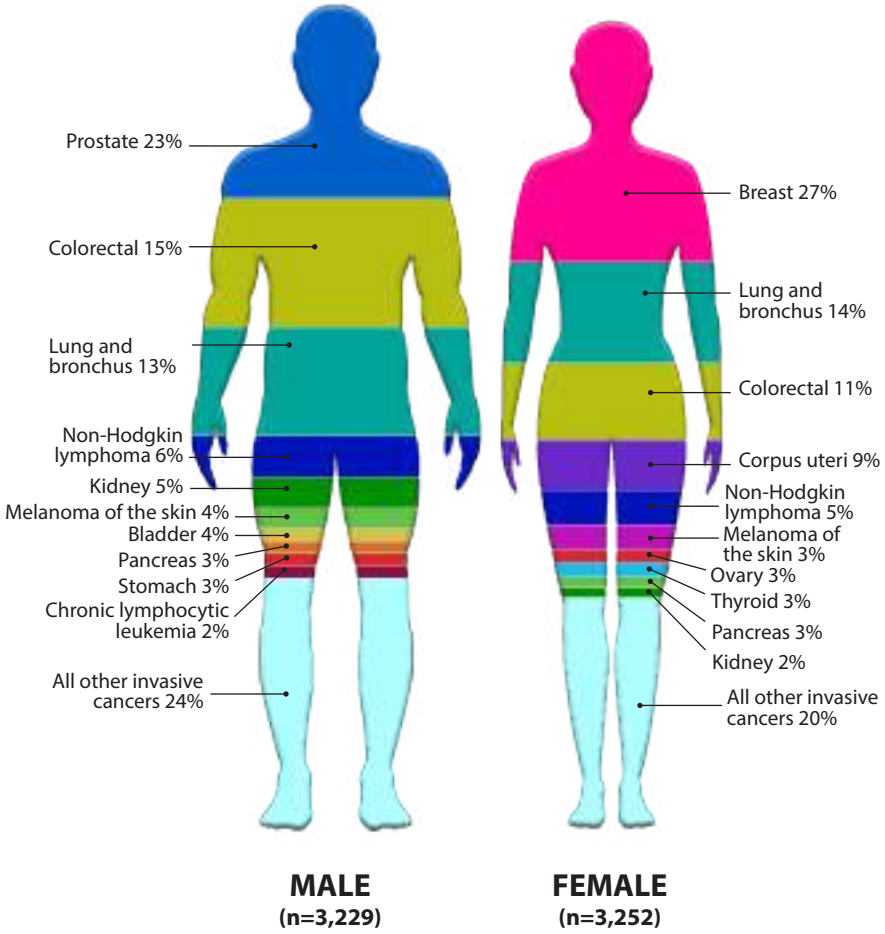
MOST COMMON CANCER DIAGNOSES IN MANITOBA, 2016

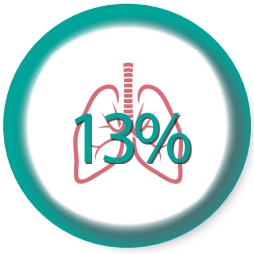
Table 4. Number of new cancer cases and age-standardized incidence rate (per 100,000) for the twenty most common cancer sites, 2016.

MANITOBA		
SITE	NUMBER	RATE (per 100,000)
All invasive cancers	***6,481***	***467.0***
Breast (female only)	873	121.6
Lung and bronchus	856	61.1
Colorectal	848	61.0
Prostate	728	110.2
Non-Hodgkin lymphoma	335	24.1
Corpus uteri (female only)	293	40.8
Melanoma of the skin	237	17.3
Kidney	219	15.9
Pancreas	177	12.7
Bladder	150	10.9
Thyroid	132	9.9
Stomach	125	9.0
Chronic lymphocytic leukemia	113	8.1
Ovary (female only)	99	13.7
Multiple myeloma	95	6.8
Other digestive system	76	5.5
Brain	75	5.5
Esophagus	68	4.9
Liver	56	4.1
Soft tissue (including heart)	51	3.8

Note: *This report highlights female breast cancer only. Please note that male breast cancer occurs at a rate of about 1% compared to female breast cancer.*
See technical appendix for data sources and methodological details.

Figure 12. Distribution of the number of cancer cases for the ten most common cancer sites by sex, 2016.





Lung cancer is the most common cancer among all Canadians.[5] 13% of Manitobans with cancer have lung cancer.

CHILDHOOD CANCER

Cancer in children is rare; however it is still the second leading cause of death by disease among Canadian children.[25] Each year approximately 880 children and youth under the age of 15 are diagnosed across Canada, and 150 die from this disease.[25,26] ***Nearly 85% of children are expected to survive at least 5 years after their cancer diagnosis.***[27] Pediatric cancers are typically different to those seen in adults. Each case requires specialized high-quality care to improve chances for survival and provide ongoing comprehensive care to reduce life-long morbidity and late effects in survivors.[28,29] The division of pediatric oncology at CancerCare Manitoba provides all aspects of pediatric care to children diagnosed with cancer across Manitoba. This includes all active treatment, comprehensive follow-up care, and enrollment to multi-institutional clinical trials.

Figure 13. Number of pediatric cancer cases (ages 0-16) diagnosed in Manitoba by year, 2006-2016.

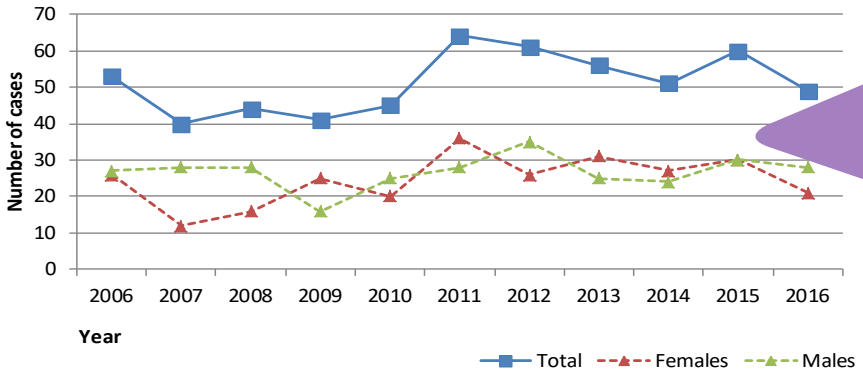


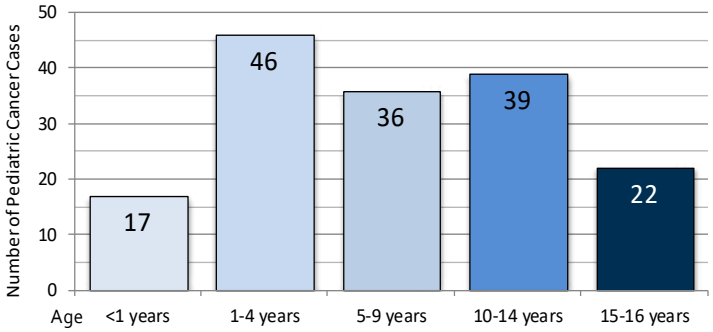
Table 5. Percentage of pediatric cancer cases (ages 0-16) diagnosed in Manitoba by type of cancer, 2014-2016.

- Leukemias (26%)
- CNS tumours (18%)
- Neuroblastomas (10%)
- Lymphomas (10%)
- Soft tissue sarcomas (7%)
- Carcinomas (6%)
- Germ cell tumours (3%)
- Renal tumours (2%)
- Malignant bone tumours (1%)
- Retinoblastomas (1%)
- Hepatic tumours (1%)
- Other (15%)

Childhood Cancers

See technical appendix for data sources and methodological details for all figures and tables on this page.

Figure 14. Number of pediatric cancer cases (ages 0-16) diagnosed in Manitoba by age, 2014-2016.



The Cancer in Young People in Canada (CYP-C) program is a national, population-based surveillance system funded by the Public Health Agency of Canada. In partnership with the C17 Council, a network of the seventeen children's cancer hospitals across Canada, CYP-C studies pediatric cancers. It collects data on diagnosis, treatments, complications, and outcomes with the aim of:

- ***helping us to better understand risk factors***
- ***improving outcomes***
- ***enhancing the quality and accessibility of care***
- ***reducing late effects***

Challenges of facing cancer for children and adolescents and young adults (AYA):

Childhood
0-14 years

Developing:

- Physically
- Emotionally
- Cognitively
- Socially

Adolescence and young adulthood
15-39 years

Developing:

- Identity
- Independence
- Relationships
- Education
- Career

Disconnection from peers and social life

Loss of independence

Adapted from the Canadian Partnership Against Cancer

Cancer diagnosis and treatment early in life

ADOLESCENTS AND YOUNG ADULTS (AYA)

268 adolescents and young adults (AYA) were diagnosed with cancer in Manitoba in 2016.

Approximately 7,600 individuals ages 15-39 were diagnosed with cancer across Canada in 2013.[30] These individuals face cancer diagnoses at a difficult time – a time of self-discovery, education, launching careers, forming adult relationships, and making plans for their future.[30] Many AYA cancer survivors will live another 50-60 years beyond their diagnosis and treatment.[30] In 2004, Statistics Canada estimated that 16,000 potential life-years were lost to cancer in individuals aged 15-29.[31]

Table 6. Invasive cancer diagnoses in Manitoban adolescents and young adults, 2016.

- Testis (14%)
- Thyroid (13%)
- Hodgkin lymphoma (11%)
- Non-Hodgkin lymphoma (9%)
- Brain (8%)
- Colorectal (7%)
- Other (38%)

Ages 15-29
Total cases in 2016 = 90
(cancer sites with less than 5 cases were combined into Other)

- Breast (19%)
- Thyroid (14%)
- Testis (9%)
- Colorectal (7%)
- Cervix uteri (6%)
- Non-Hodgkin lymphoma (6%)
- Melanoma of the skin (6%)
- Soft tissue (including heart) (4%)
- Kidney (3%)
- Brain (3%)
- Ovary (3%)
- Other (20%)

Ages 30-39
Total cases in 2016 = 178
(cancer sites with less than 5 cases were combined into Other)

Improving care of underserved populations, including AYA, is a priority for CancerCare Manitoba. A new AYA strategy targets improvement to quality and coordination across three areas of care: 1) Psychosocial, Educational, and Vocation Support; 2) Oncofertility Preservation; 3) Clinical Trial Accrual.

Table 7. Three pillars of CancerCare Manitoba's Strategy for Adolescents and Young Adults.

	Psychosocial, Educational, and Vocational Support	Oncofertility Preservation	Clinical Trial Accrual
AIM	To launch an AYA Psychosocial Program to respond to needs during and after cancer treatment.	To provide timely information and access to oncofertility services.	To provide increased access to clinical trials.
WHY?	AYAs face distinct challenges requiring specialized and personalized care that includes tailored psychosocial assistance.[30]	Fertility after cancer can be affected by many factors (e.g., type of cancer, treatments, age at diagnosis, time since treatment).	Globally, AYA accrual to clinical trials is low, meaning fewer opportunities to access new drugs and better treatment.[33-37]
PROGRESS	Between inception (February 2017) and January 2019, ***272*** referrals were made to the AYA Psychosocial Program. The Moving Forward After Cancer for AYA resource was developed in 2018.[32]	Referral data are currently unavailable. Fertility preservation is cost-prohibitive for many cancer patients.	***17*** clinical trials were open at CCMB eligible to AYA patients, as of May 2018.

See technical appendix for data sources and methodological details for all Tables on this page.

In 2017, 34 AYAs were enrolled to PROFYLE across Canada.

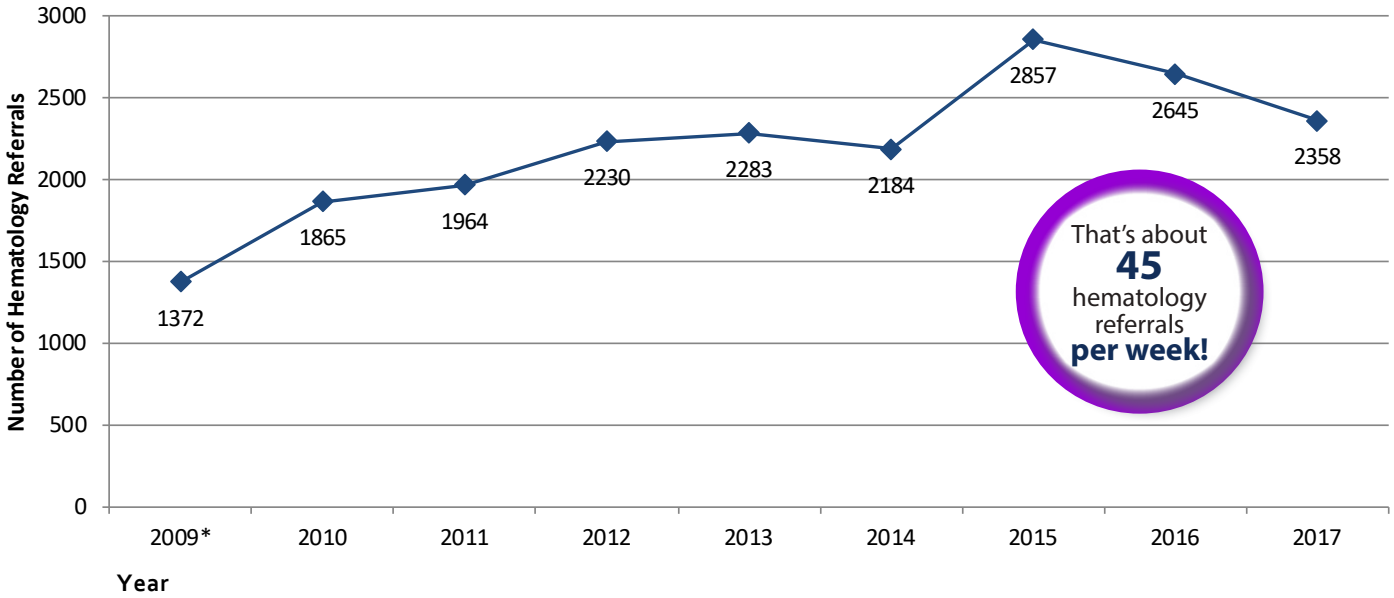
The Terry Fox Foundation's Precision Oncology For Young People (PROFYLE) is a unique pan-Canadian partnership of medical and research experts providing children and AYA with rare and hard to treat cancers another chance for survival. It is a great example of how research findings can move from bench to bedside in real time to provide high quality care to Manitobans. Since inception (2016) Manitoba has enrolled 7 AYA patients.

BLOOD DISORDERS

People can be affected by different types of blood conditions and blood cancers. These include anemia, bleeding disorders, blood clots, and blood cancers such as leukemia, lymphoma, and myeloma. A hematologist applies specialized knowledge to treat patients with blood conditions and cancers and often these treatments require specialized multidisciplinary care within oncology. This is why CancerCare Manitoba (CCMB) includes blood disorders within its mandate of care – a unique approach in Canada. An example of this comprehensive multidisciplinary care can be seen in our hemoglobinopathy and hemophilia clinics. The workload associated with referral, diagnosis, and clinical management of blood disorders is significant as these patients require very complex care within the oncology system.

Currently, data on blood disorders are difficult to capture on a population-wide basis. This means we cannot reliably report the number of diagnoses per year or the types of disorders seen most often. Referral data from the Provincial Cancer Referral and Navigation Service provides insight into the number of Manitobans referred to CCMB with signs and symptoms of blood disorders. CCMB hematologists manage care for about 50% of these initial referrals to CCMB. Those referred back to their primary care providers are offered detailed information for clinical management that can occur outside the oncology system.

Figure 15. Number of hematology referrals through CCMB's Provincial Cancer Referral and Navigation Service over time, 2009-2017.



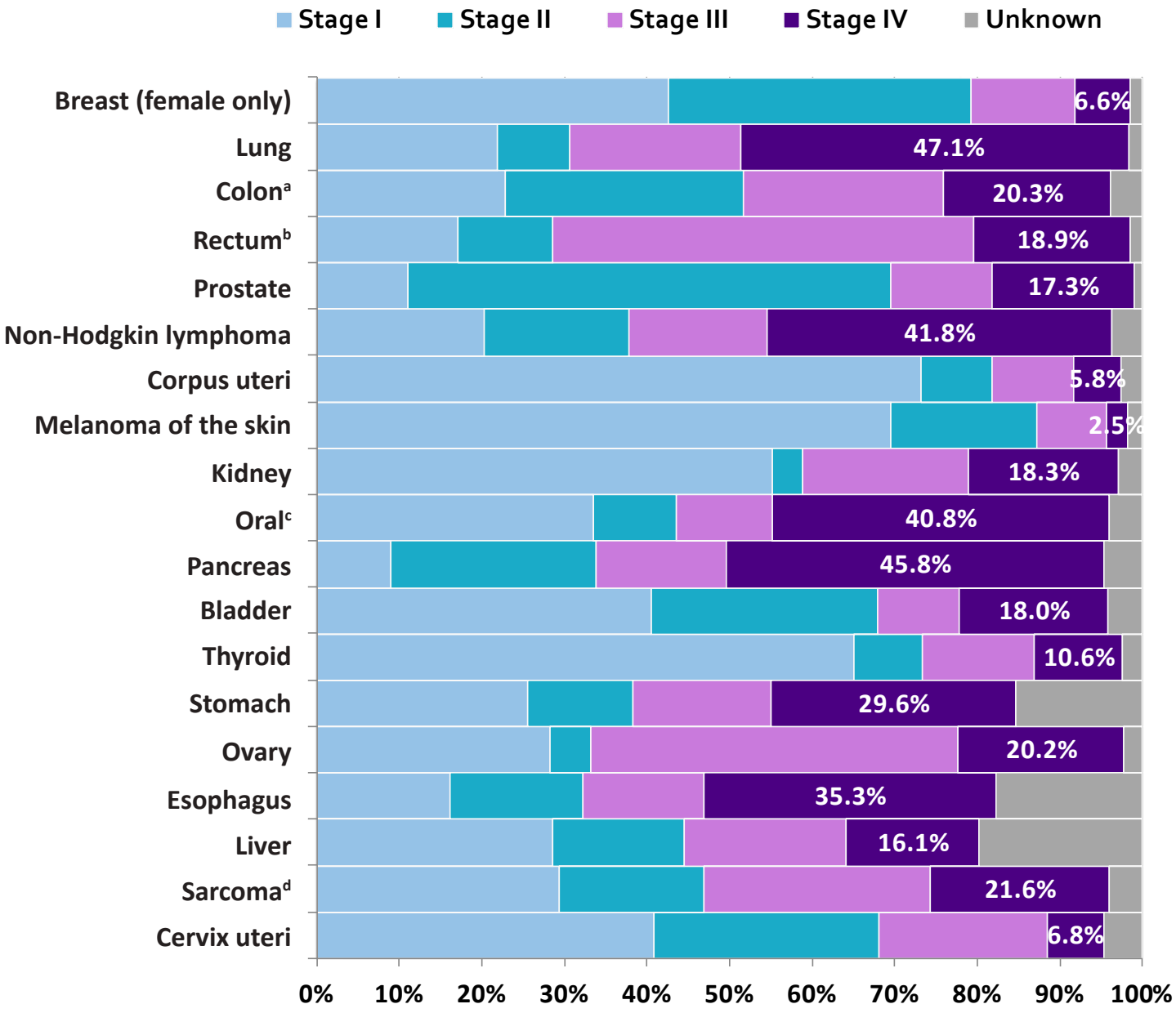
**Complete centralization of the hematology triage process through CCMB's Provincial Cancer Referral and Navigation Service for MacCharles and St. Boniface sites was fully implemented in August 2009. The sharp increase in 2015 reflects the retirement of a Community Hematologist and transfer of patients to CCMB Hematology. This occurred during concurrent increase of re-referrals to multiple hematologists. We expect to see a levelling off of referrals over time.*
See technical appendix for data sources and methodological details.

The provision of all care related to blood disorders at CCMB is in addition to the 6,481 new cancer cases CCMB oncologists provide care for on an annual basis.

CANCER DIAGNOSIS BY STAGE

For many cancers, early diagnosis can result in more effective treatment and positive outcomes. Often individuals who are diagnosed with a later stage cancer do not have the same chances of cure as those with early-stage disease. The survival rate for those diagnosed with later stage disease is often lower. The percent of late-stage diagnoses (stage IV) are highlighted for each type of cancer in the figure below.

Figure 16. The percent of late-stage diagnoses (stage IV) by cancer site, 2016.



[a] excludes rectum; [b] includes rectosigmoid; [c] oral cancer (buccal cavity and pharynx; includes: lip, tongue, salivary gland, mouth, nasopharynx, oropharynx, and other unspecified cases); [d] soft tissue (includes the heart).
Notes: Staging data is for 2016 with the list of cancers referenced reflecting cancer types with more than 40 cases in that year; in keeping with international coding conventions all invasive brain tumours, multiple myeloma, and leukemia are considered unstageable using the collaborative staging system utilized by all population-based North American Association of Cancer Registries. Non-Hodgkin lymphoma only includes data for the more aggressive subtypes.
See technical appendix for data sources and methodological details.

CANCER DIAGNOSIS BY STAGE

HOW CANCER PROGRESSES FROM STAGE TO STAGE

Cancer staging is based on information related to the growth and spread of a cancer. Cancer cells grow and divide without order and control, and do not die when they should. As a result, a mass of tissue, called a tumour, may develop. Tumours usually start out as localized growths limited to a specific organ or body part (Stages 0-I). As a tumour grows, it may invade nearby tissues and organs (Stages II-III). Cancer cells can also break away from the tumour and enter the bloodstream or the lymphatic system. This means that cancer cells can spread from the primary site to lymph nodes or other organs. The spread of cancer is called metastasis (Stage IV).[38]

Figure 17. Percentage of stage IV cancer diagnoses by cancer site with regional comparison across Manitoba (2014-2016).

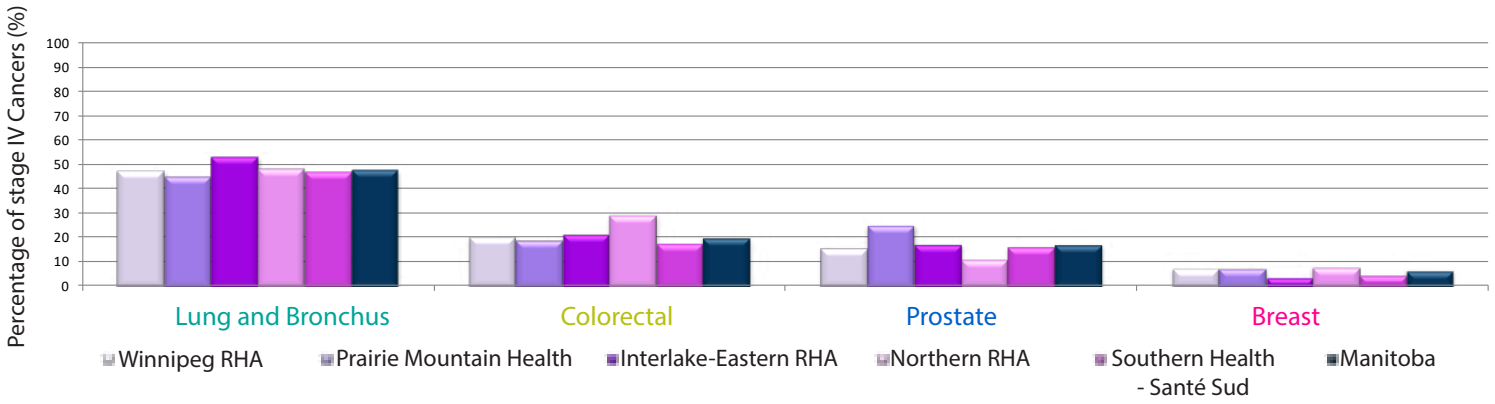
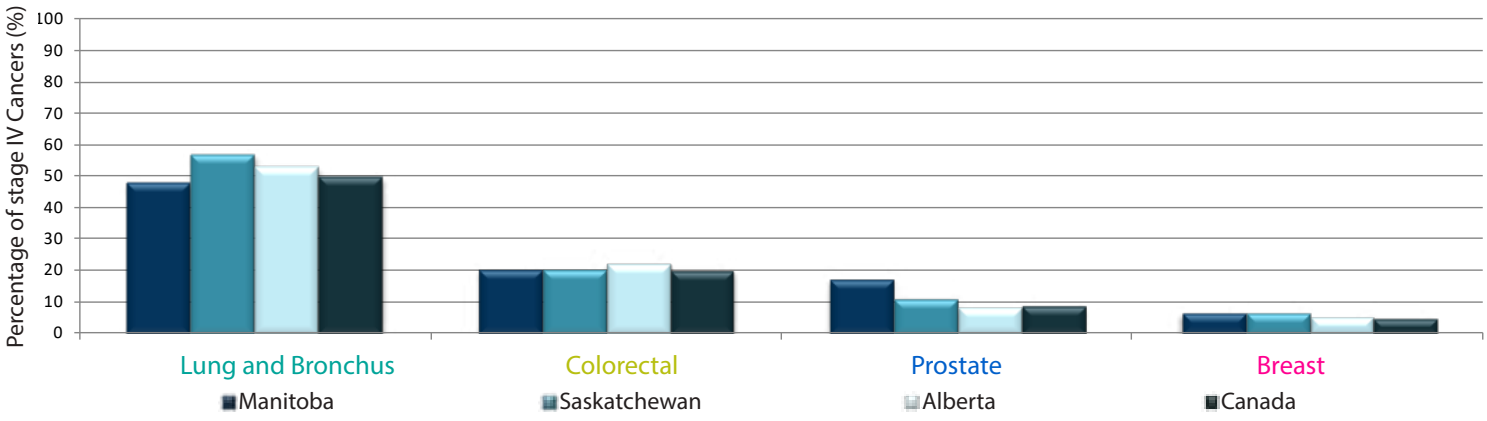


Figure18. Percentage of stage IV cancer diagnoses by cancer site with comparison to Prairie provinces and Canada overall[39] (2011-2015).



See technical appendix for data sources and methodological details for both figures on this page.

WAIT TIMES

Through my twelve year cancer journey I received fabulous care and no worry about cost, or wait times, or doctor availability. I began by accepting I knew nothing about cancer and put my faith in the knowledge of the professionals in charge of my care. I was consulted about the care and treatment, and aware that coordination was required to make it all work.
All I had to do was show up.
- CCMB patient.

Waiting for test results can be anxiety provoking and a difficult time for patients. In collaboration with its service delivery partners, CancerCare Manitoba works to monitor wait times to ensure all Manitobans are able to receive timely diagnoses, appointments with oncologists, and timely access to cancer treatment.

WAIT TIMES

CancerCare Manitoba's (CCMB) Wait Times Initiative has been systematically working with clinical and analytical experts to build on existing information technology infrastructure to report comprehensively on wait times between different points of the cancer continuum. Currently, we report on wait times for the following:

- ✓ Screening mammogram abnormal result to final diagnosis
- ✓ Screening fecal occult blood test (FOBT) abnormal result to colonoscopy
- ✓ Diagnostic imaging to diagnosis
- ✓ Pathology specimen collection date to diagnosis
- ✓ Referral received at CCMB to initial consult with medical oncologist
- ✓ Initial consult with medical oncologist to first chemotherapy treatment
- ✓ Ready-to-treat to initiation of radiation therapy

WAIT TIMES: BREAST AND COLON CANCER SCREENING

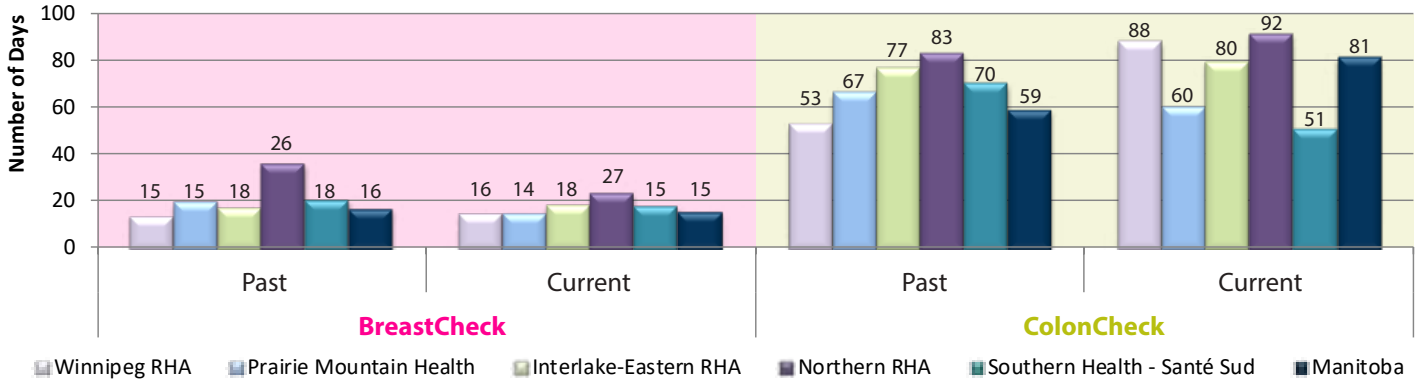
Research shows that long waits after an abnormal screening result can trigger increased acute anxiety for individuals. Reducing the time people wait to complete all follow-up testing can help to reduce this anxiety.[40] The CancerCare Manitoba Screening Programs (BreastCheck, ColonCheck) coordinate follow-up testing for most individuals following an abnormal screening mammogram and FOBT respectively, and manage fail-safe letters for abnormal Pap tests through CervixCheck. Both BreastCheck and ColonCheck also monitor wait times on a continuous basis and alter referral patterns if necessary to shorten wait times. BreastCheck has shown that a facilitated follow-up process results in shorter wait times compared to follow-up coordinated by referral back to a primary care provider.[41]

Table 8. Breast and colon cancer screening wait times.

WAIT TIMES	Past	Current	Direction of Change
Breast Cancer Screening Wait Times - BreastCheck Median wait time (in days) for women (ages 50-74) from an abnormal mammogram screening result to final diagnosis ***National Target:*** >90% within 5 weeks (35 days) if no tissue biopsy (core or open) performed and >90% within 7 weeks (49 days) if tissue biopsy (core or open) performed.	**16.0 days**	**15.0 days**	→
Colon Cancer Screening Wait Times - ColonCheck Median wait time (in days) for individuals (ages 50-74) from an abnormal FOBT result to colonoscopy ***National Target:*** < 60 days from abnormal fecal test for >90% of people.	**59.0 days**	**81.0 days**	↑

Breast Cancer: Past - January 1, 2014 to December 31, 2015; Current: January 1, 2016 to December 31, 2017.
Colon Cancer: Past - January 1, 2013 to December 31, 2014; Current: January 1, 2015 to December 31, 2016.
Trend arrow is based on + or - 10% of the past value with colour showing the direction of change (green = improvement; red = decline; yellow = neutral).

Figure 19. Variation in median waiting time (in days) for breast and colon assessment waits across Manitoba Regional Health Authorities (RHAs).



BreastCheck: Past - January 1, 2014 - December 31, 2015; Current - January 1, 2016 - December 31, 2017.
ColonCheck: Past - January 1, 2013 - December 31, 2014; Current - January 1, 2015 - December 31, 2016.
See technical appendix for data sources and methodological details for figures and tables on this page.

WAIT TIMES: TIME TO DIAGNOSIS

Waiting for test results can be anxiety provoking and a difficult time for patients. At CancerCare Manitoba (CCMB), we work with the regional health authorities, diagnostic facilities, and Shared Health to monitor the time between the date tests were ordered by the physician or specimens were collected to the date test results were reported. Each quarter these wait times are compared to agreed targets to identify any areas of concern that require focused quality improvement. Wait times for diagnostic imaging reflect a two-year period (January 1st, 2016 to December 31st, 2017). On the next page you can see wait times for pathology for the same period as shown below.

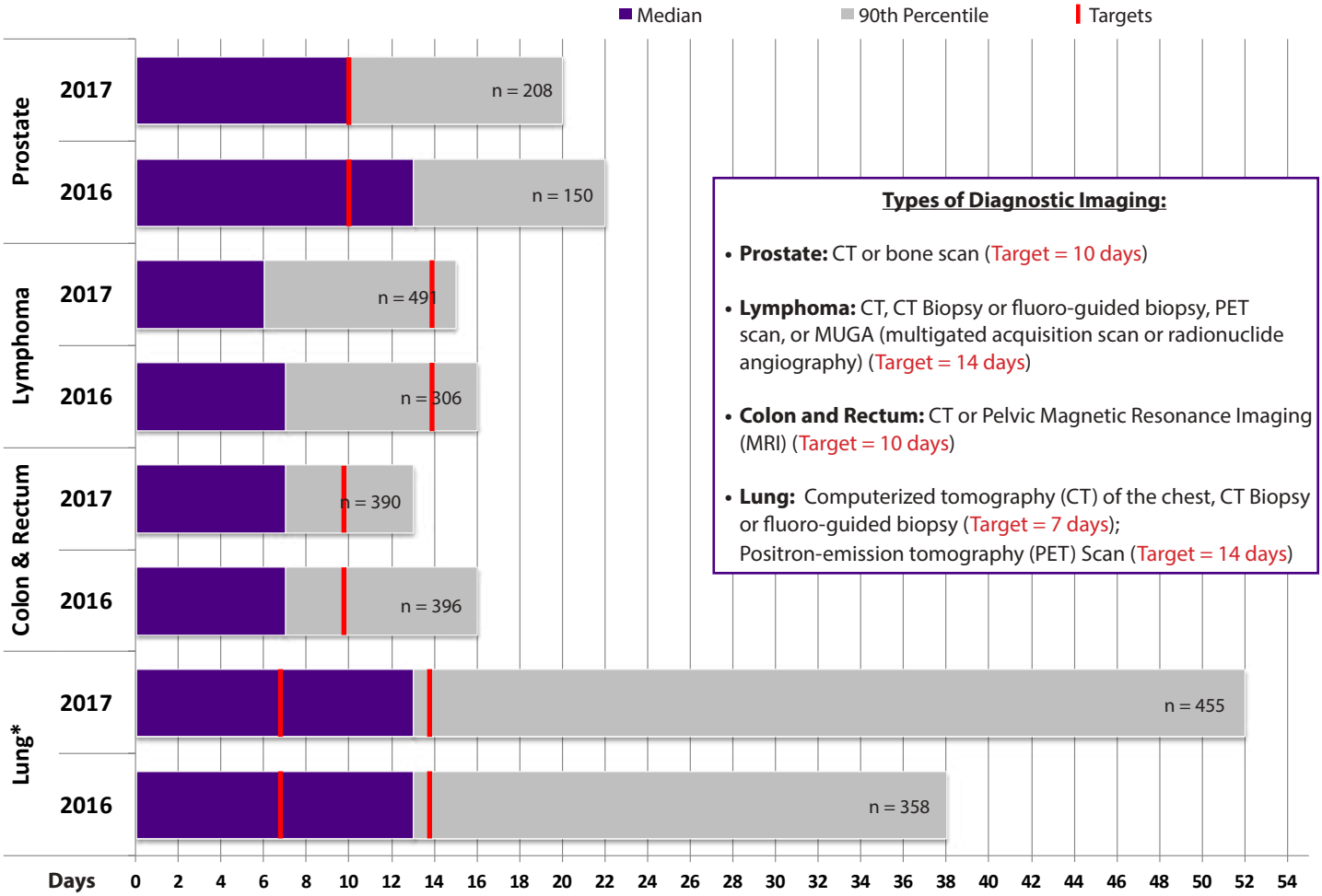
MEDIAN: The number of days by which half the patients received a specific cancer service (i.e., test, visit, or treatment).

90th PERCENTILE: The number of days by which 90% of patients received a specific cancer service (i.e., test, visit, or treatment).

DIAGNOSTIC IMAGING WAIT TIMES

Figure 20. Diagnostic imaging wait times, 2016-2017.

Wait times are calculated as the number of days between a) the date the requisition for diagnostic imaging was received and b) the date a result was reported.

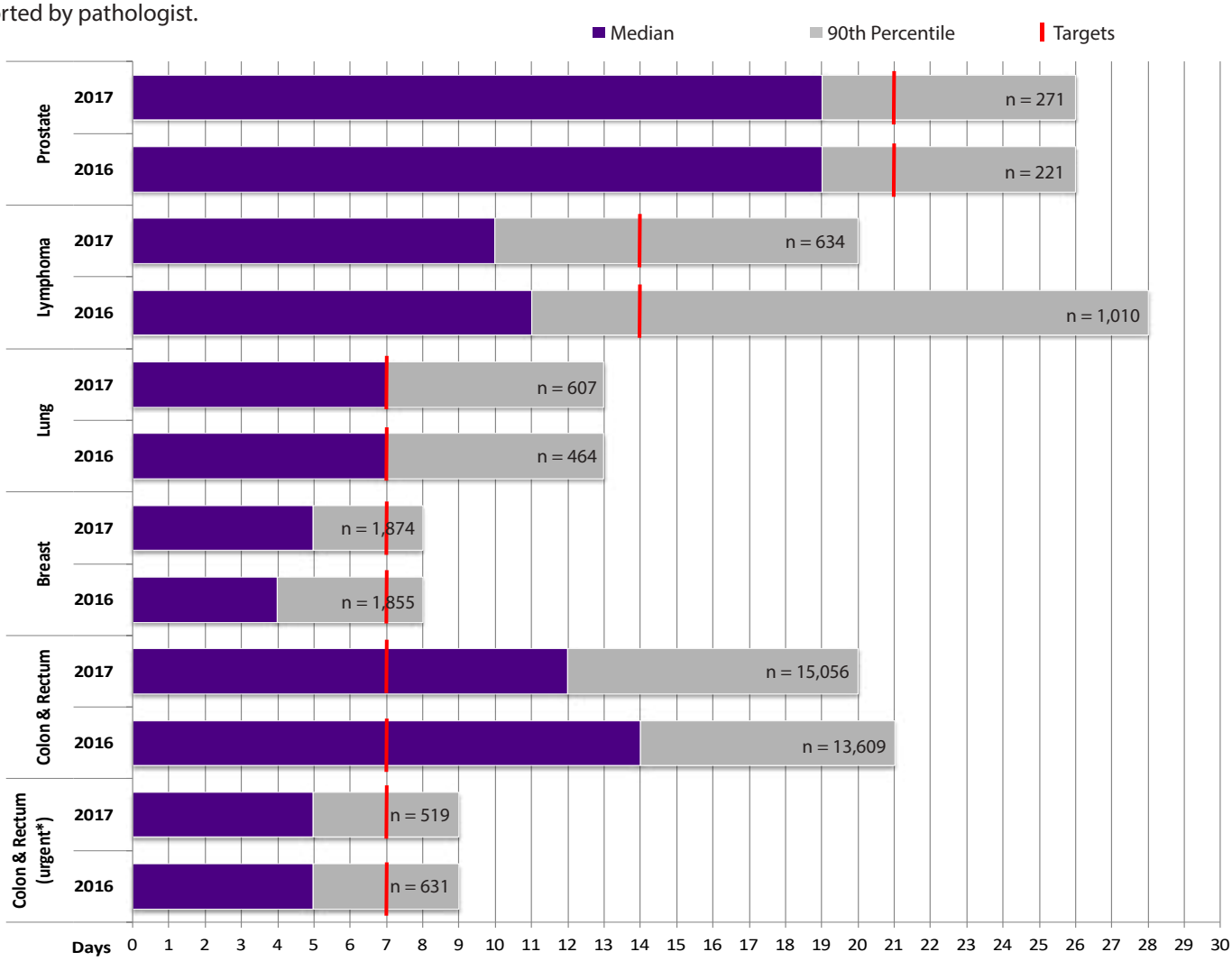


Note: *For diagnostic imaging, wait time is reported for each diagnostic test separately. Wait time data for breast cancer diagnostic mammograms from private clinics are not available. * Two targets are identified for lung cancer diagnostic imaging. The first (7 days) is for CT, CT guided, and lung fluoro biopsies. The second (14 days) is for PET scans. Data shown in the above figure is provincial with the exception of Brandon, which is excluded. All targets were initially identified by the Cancer Patient Journey Initiative (CPJI) and continue to be assessed.*
See technical appendix for data sources and methodological details.

PATHOLOGY WAIT TIMES

Figure 21. Pathology wait times, 2016-2017.

Wait times are calculated as the number of days between a) the date of specimen collection to b) the date the result was reported by pathologist.



Note: *Due to implementation of a new Laboratory Information System (LIS) in 2018 it is possible that future reporting may not be directly comparable to current data. All targets were initially identified by the Cancer Patient Journey Initiative (CPJI) and continue to be assessed. *flagged as urgent on the requisition based on guidelines set out in CPJI and ability to identify highly suspicious cancers with endoscopy.*
See technical appendix for data sources and methodological details.

Targets are based on 90th Percentile.
2019 targets are being reviewed from 14 days to 11 days.

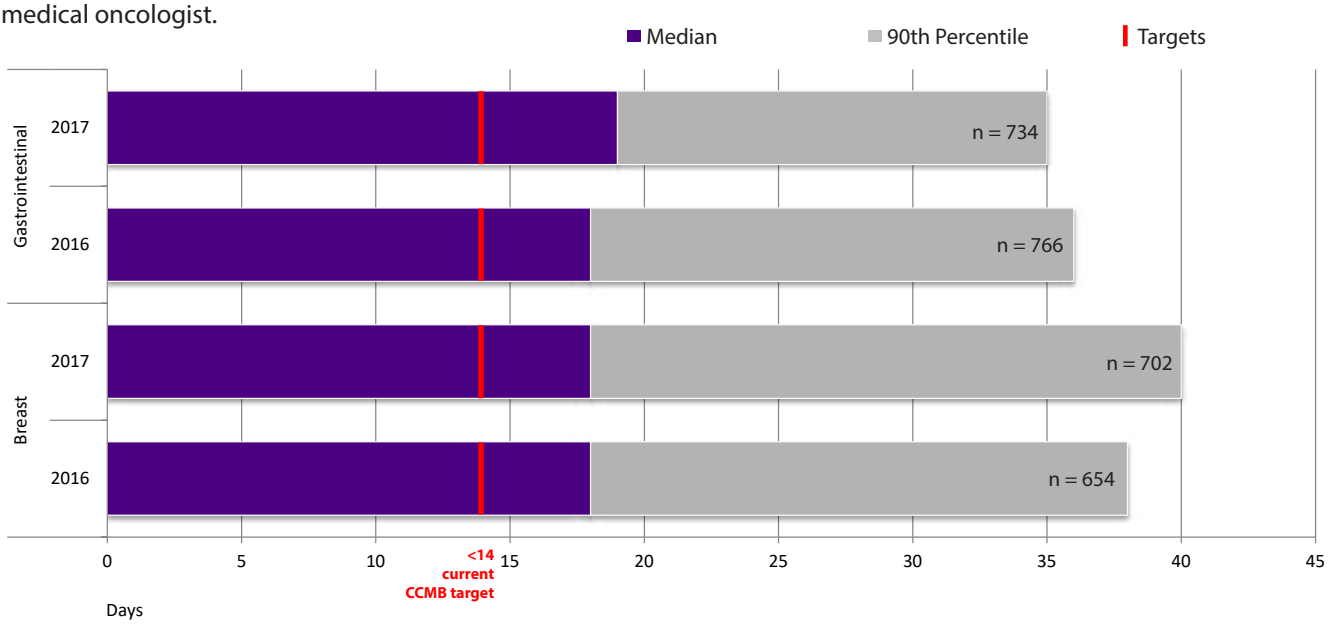
WAIT TIMES: WAITING TO SEE A MEDICAL ONCOLOGIST

Referrals to CancerCare Manitoba (CCMB) are processed by the Provincial Cancer Referral and Navigation Service. This team triages referrals efficiently to minimize the time patients wait before their first consult with a medical oncologist.

REFERRAL WAITS

Figure 22. Referral wait times, 2016-2017.

Wait times are calculated as the number of days patient waited between a) their referral to CCMB and b) their first consultation with a medical oncologist.

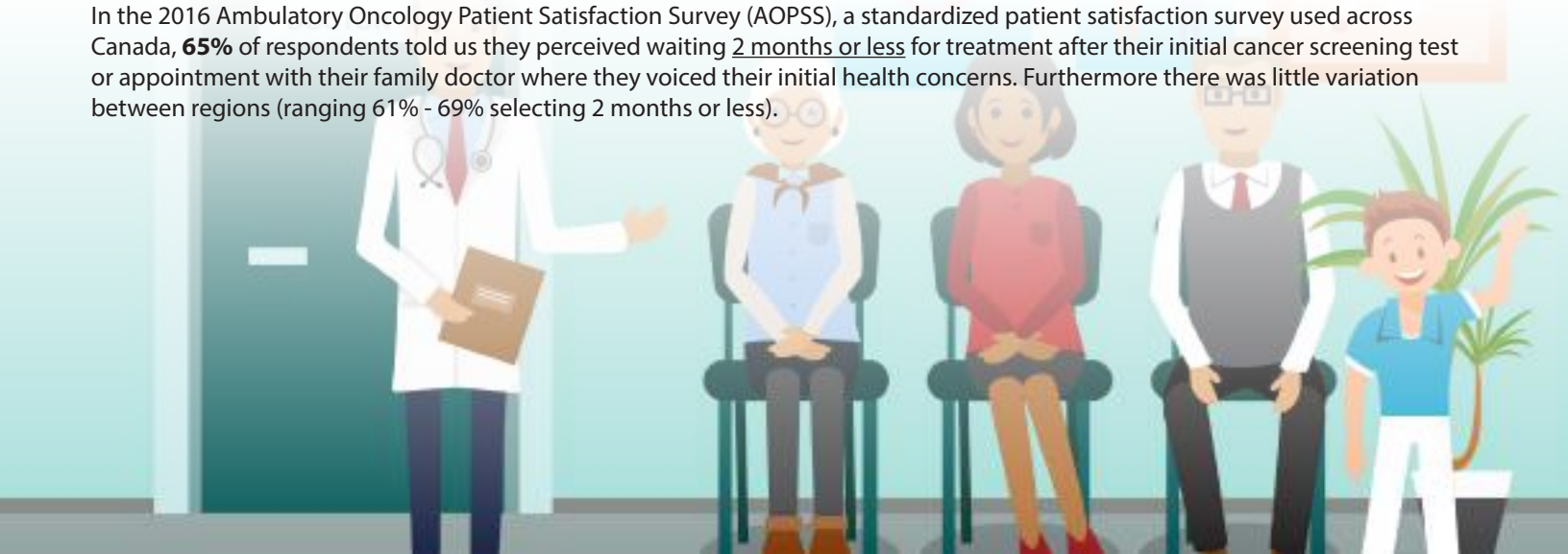


Note: *Data excludes delays caused by factors outside the control of CCMB, including delays due to missing documentation, medical delays (e.g., cancer diagnosis confirmation, lab and imaging test results, surgery and recovery time, etc.) or personal decisions to wait (e.g., travel, timing).*
See technical appendix for data sources and methodological details.

We're working hard to report wait times for other cancer types.
Keep watching the CCMB website for new information!

Patient-Reported Wait Times

In the 2016 Ambulatory Oncology Patient Satisfaction Survey (AOPSS), a standardized patient satisfaction survey used across Canada, **65%** of respondents told us they perceived waiting 2 months or less for treatment after their initial cancer screening test or appointment with their family doctor where they voiced their initial health concerns. Furthermore there was little variation between regions (ranging 61% - 69% selecting 2 months or less).



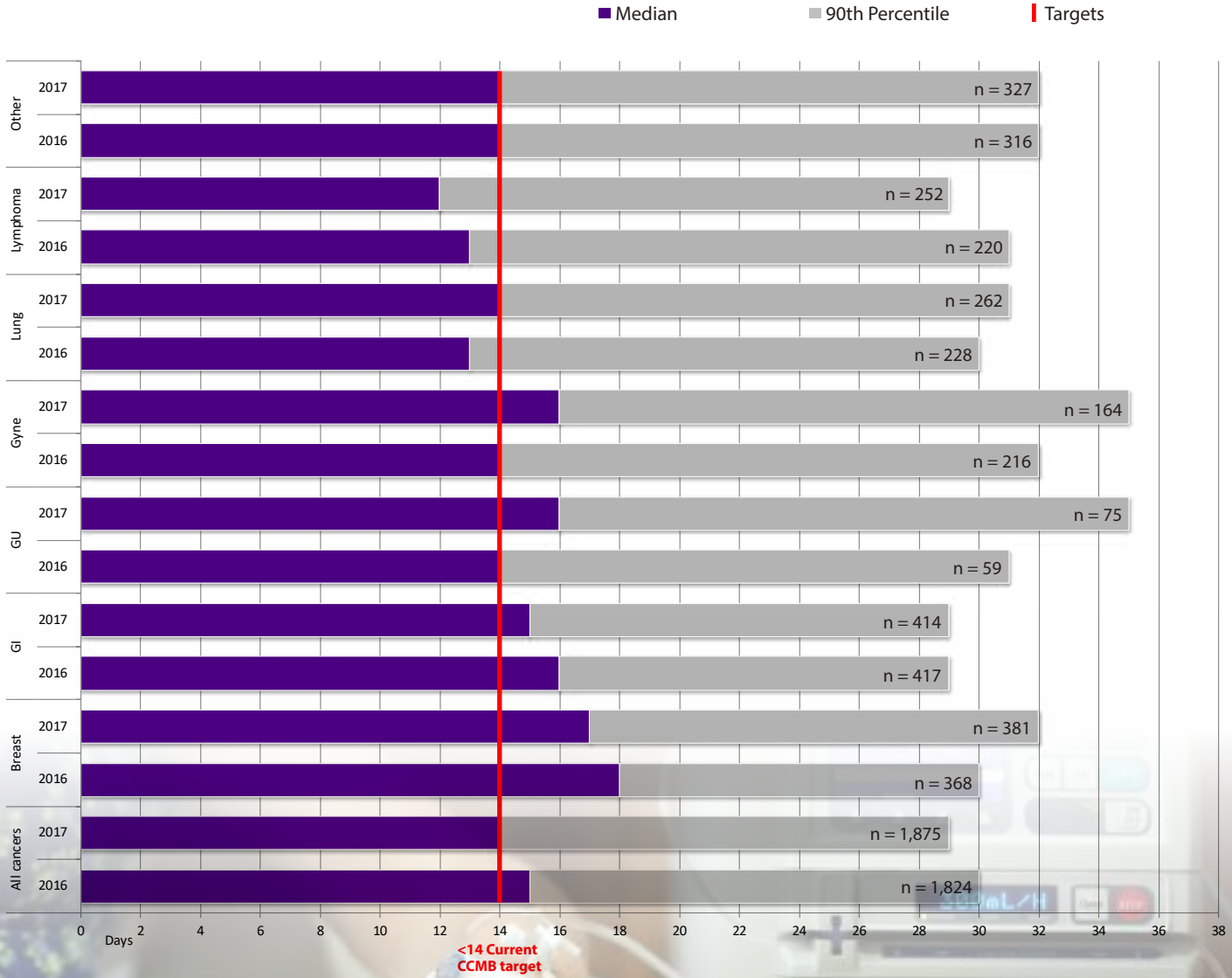
WAIT TIMES: WAITING FOR TREATMENT

INTRAVENOUS (IV) CHEMOTHERAPY WAITS

Figure 23. IV chemotherapy wait times, 2016-2017.

Wait times are calculated as the number of days between a) their consult with a medical oncologist where a decision-to-treat was made and b) their first IV chemotherapy treatment.

For many cancers we see decreased wait times in 2017.
We continue to implement new and innovative ways to decrease wait times for IV chemotherapy across Manitoba!



Note: *GI = gastrointestinal; GU = genitourinary; Gyne = gynecologic*
See technical appendix for data sources and methodological details.

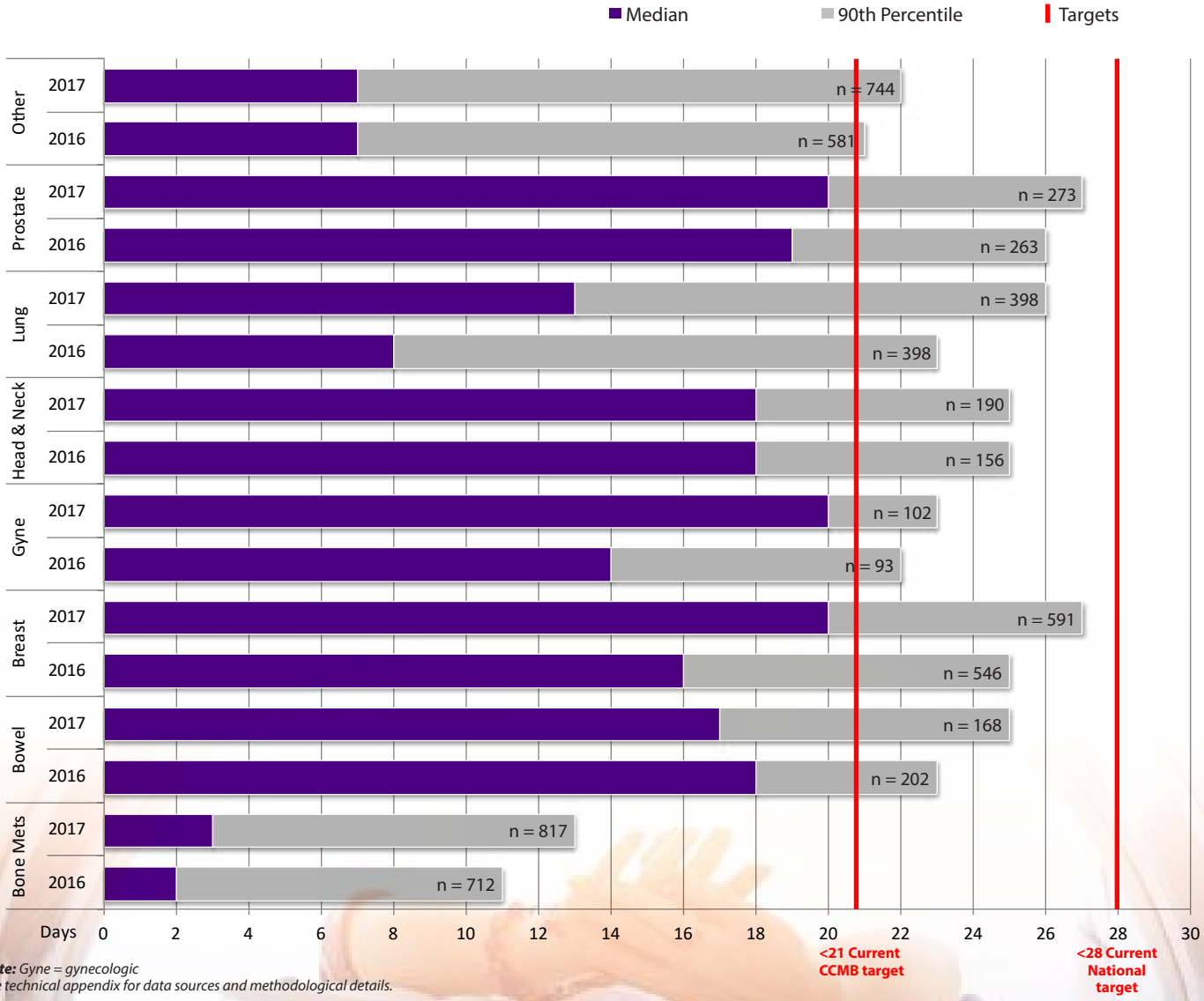
WAIT TIMES: WAITING FOR TREATMENT

RADIATION THERAPY WAITS

Figure 24. Radiation therapy wait times, 2016-2017.

Wait times are calculated as the number of days between a) being identified as ready-to-treat by the radiation oncologist and b) their first radiation treatment.

Regardless of cancer type, 100% of patients received their radiation treatment within 28 days of being identified as ready-to-treat!



Note: *Gyne = gynecologic*
See technical appendix for data sources and methodological details.

CANCER TREATMENT

"The support that a cancer patient has, from the nurse navigators, the radiation techs, the chemo nurses, the docs, psychosocial, to the drivers and cookie ladies! I always said, if every disease or disorder had the support cancer people in Manitoba had, it would be a better world!"
- CCMB patient.

Once a patient is diagnosed with cancer the health care team will identify the available treatment choices. The reality is that cancer is not a single disease with a single type of treatment. There are more than 200 different kinds of cancer, each with its own name and treatment. Some people may only have one type of treatment while others will have more than one. Cancer treatment requires careful consideration of the evidence-based options available. This can include more than one of the major therapeutic modalities: surgery, radiotherapy, and systemic therapy (chemotherapy). CancerCare Manitoba staff know receiving treatments brings patients and their families into a world of the unknown. We work to involve patients and their loved ones into treatment decisions to help ease patient anxiety about the care received.

CANCER TREATMENT

2/5
NEARLY TWO IN FIVE PATIENTS UNDERWENT SYSTEMIC THERAPY IN MANITOBA.

1/4
MORE THAN ONE IN FOUR PATIENTS UNDERWENT RADIATION THERAPY IN MANITOBA.

1/2
MORE THAN ONE IN TWO PATIENTS UNDERWENT SURGERY IN MANITOBA.

Table 9. Comparison between past and current estimates for percentage of patients who were treated with systemic therapy, radiation therapy, and surgery, including comparison between Regional Health Authorities (RHA).

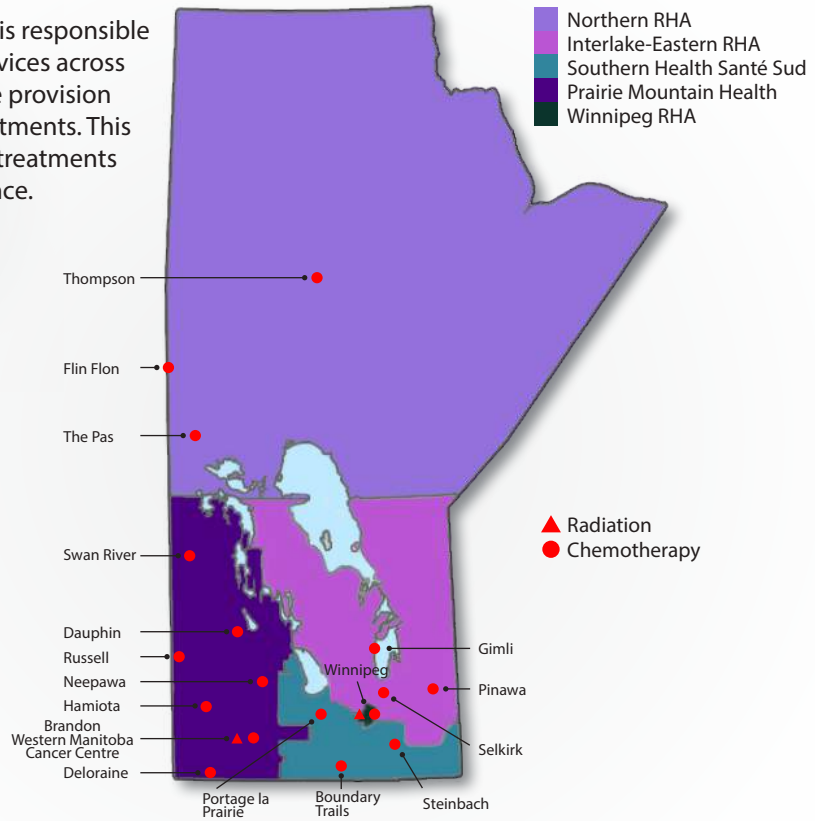
	Past	Current	
	2011-2013	2014-2016	RHA Range
SYSTEMIC THERAPY Patients receiving systemic therapy (cancer drugs or chemotherapy), all cancers	38.0% (n=7,221)	39.4% (n=7,662)	37.0% to 41.3%
RADIATION THERAPY Patients receiving radiation therapy, all cancers	28.1% (n=5,352)	27.5% (n=5,338)	25.1% to 28.4%
SURGERY Patients receiving surgery, all cancers	54.5% (n=10,372)	51.9% (n=10,083)	50.0% to 54.0%

See technical appendix for data sources and methodological details.

Utilization of each treatment modality has been steady over time for most cancers. However, we have seen increasing rates of radiation therapy for lung and rectal cancers, decreasing rates of surgery for prostate cancers, and increasing rates of chemotherapy for prostate cancer. Meanwhile the rates of radiation therapy have decreased for breast cancers.

These data inform the Manitoba cancer control strategy and are used in planning service delivery across the province. However, treatment utilization rates do not necessarily indicate the appropriateness of care, but rather reflect the type and stage of disease, patients' medical fitness for treatment, and patient choice. Patterns in these measures identify both successes and areas for improvement.

CancerCare Manitoba (CCMB) is responsible for the provision of cancer services across the province. This includes the provision of locally available cancer treatments. This map highlights where cancer treatments are provided across the province.



A patient's treatment plan is developed with consideration of several factors:

- **Type of cancer**
- **Stage of cancer**
- **Medical fitness**
- **Patient preference**

SYSTEMIC THERAPY (CHEMOTHERAPY)

Treatment patterns vary by type of cancer and region. Overall, the percent of Manitobans living with cancer who received systemic therapy (chemotherapy drugs including hormonal therapy) has remained stable over time. These data are not routinely reported across Canada.

Nearly 40% of all Manitobans diagnosed with cancer will require systemic therapy.

By Cancer Type

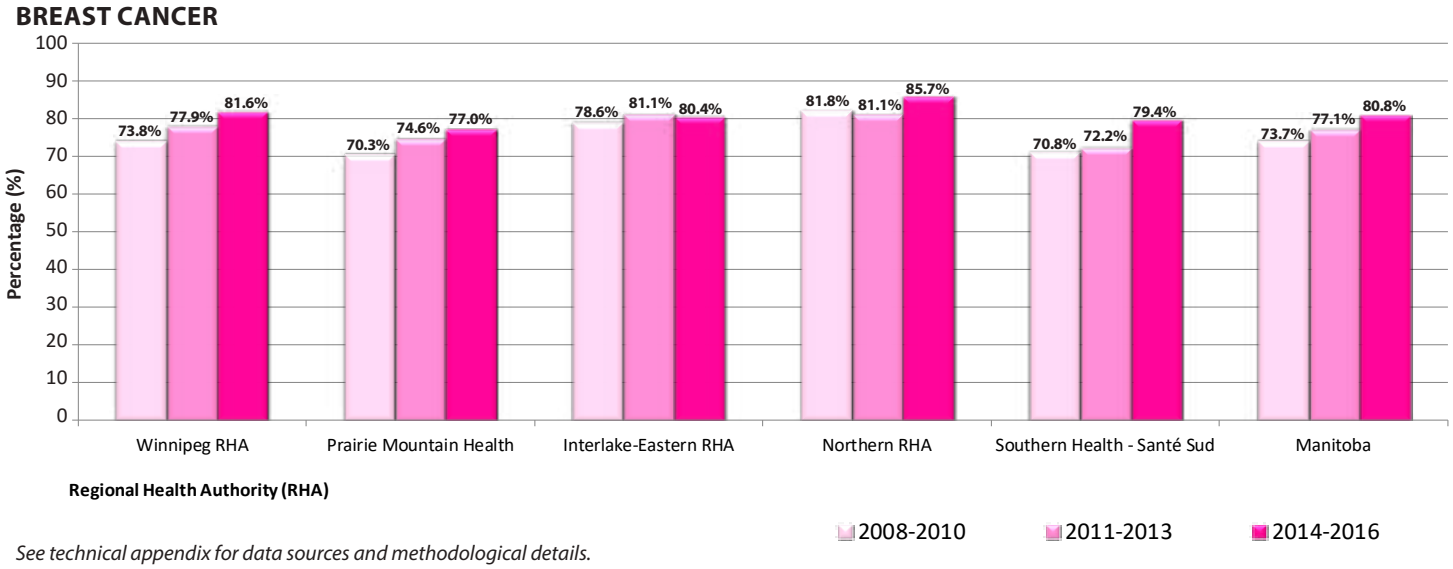
Table 10. Percentage of patients receiving systemic therapy within one year of diagnosis by cancer type.

	2014-2016	% Change from 2011-2013	Mean number of cases receiving systemic therapy in one year
Lung	26.0%	No change	241
Colon (excludes rectum)	29.6%	No change	158
Breast (female only)	80.8%	No change	681
Prostate	39.9%	**+18% increase**	285
All invasive cancers	39.4%	No change	2,554

See technical appendix for data sources and methodological details.

By Region

Figure 25. Percentage of patients diagnosed with breast cancer who received systemic therapy within one year of diagnosis, by Regional Health Authority (RHA).



See technical appendix for data sources and methodological details.

Systemic therapy is important for the treatment of late-stage cancers.

In general, the more advanced the stage of cancer at diagnosis, the greater the chances of needing systemic therapy.

Waiting for treatment

Waiting for results and treatments can be a difficult time for patients and their loved ones. We hope to minimize stress caused by waiting. In the 2016 Ambulatory Oncology Patient Satisfaction Survey (AOPSS) over 95% of Manitoban respondents told us they waited 30 minutes or less in the waiting room for their scheduled radiation or chemotherapy treatment appointments. In addition, over 80% of respondents who had to wait longer than expected told us that their health care providers did everything they could to make them more comfortable during this wait.

RADIATION THERAPY

48,626
radiation treatments (fractions) were provided to patients at Winnipeg and Brandon sites in 2016.

Treatment patterns vary by type of cancer and region. Variations in use of radiation therapy may be due to clinical factors or patient choice. The choice to undergo radiation therapy is also affected by factors including the distance a patient lives from a treatment centre, the length of time away from home and family, and information provided by patients' primary care physicians or surgeons. Manitobans can receive radiation therapy at CancerCare Manitoba (CCMB) in Winnipeg and at the Western Manitoba Cancer Centre in Brandon.

Over 25% of all Manitobans diagnosed with cancer will require radiation therapy.

CancerCare Manitoba offers state of the art radiation treatments to all patients in Manitoba. This includes:

- *Three-Dimensional Conformal Radiation Therapy (3D-CRT):* Conformal radiation therapy uses medical imaging scans to outline the tumour in 3D.
- *Intensity Modulated Radiation Therapy (IMRT):* This is a form of 3D-CRT. It allows changes in the intensity (strength) of each radiation beam.
- *Stereotactic Body Radiation Therapy (SBRT):* A type of external beam radiation therapy that targets small tumours of the spine, lung and liver
- *High-dose radiation (HDR) Brachytherapy:* Internal radiation therapy that targets gynecological tumours.
- *Low-dose radiation (LDR) brachytherapy:* Internal radiation that targets prostate tumours.
- *Image Guided Radiation Therapy (IGRT):* all radiation treatments use daily medical images to ensure the precise delivery of radiation to the tumour while sparing as much normal tissue as possible.

By Cancer Type

Table 11. Percentage of patients receiving radiation therapy within one year of diagnosis by cancer type.

	2014-2016	% Change from 2011-2013	Mean number of cases receiving radiation therapy in one year
Lung	44.1%	+17% increase	408
Rectum and rectosigmoid	49.4%	+15% increase	148
Breast (female only)	53.6%	-13% decrease	452
Prostate	22.6%	No change	161
All invasive cancers	27.5%	No change	1779

By Region

Figure 26. Percentage of patients diagnosed with breast cancer who received radiation therapy within one year of diagnosis, by Regional Health Authority.

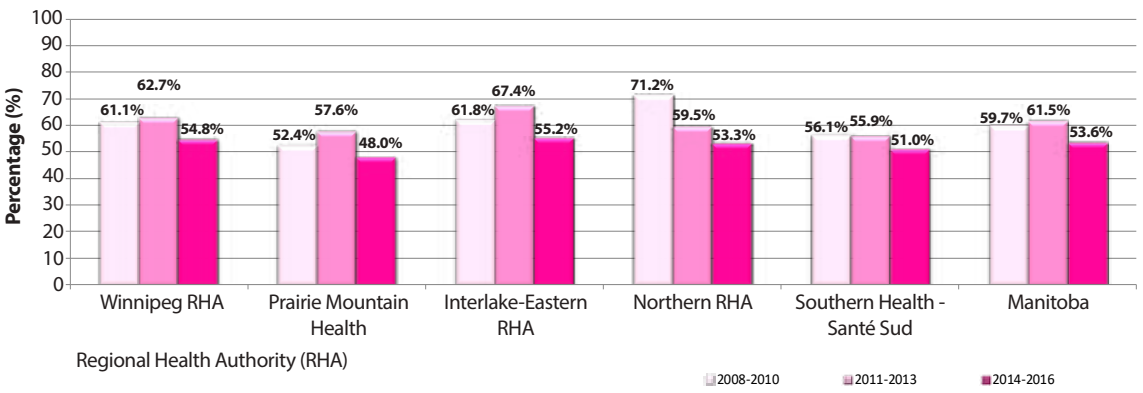
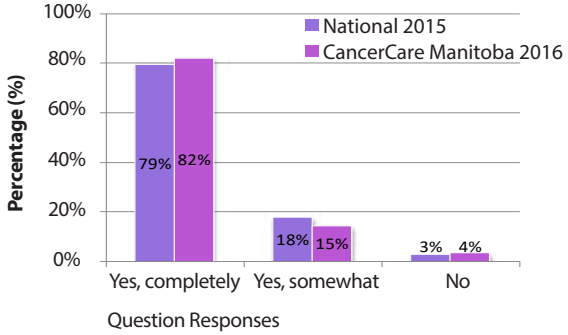


Figure 27. Response breakdown to the question "Did a care provider tell you how to manage any side effects of radiation therapy?" on the 2016 Ambulatory Oncology Patient Satisfaction Survey (AOPSS).



CancerCare Manitoba aims to provide patients with the information they need. The Radiation Therapy program provides information sessions to every new patient.

See technical appendix for data sources and methodological details for all tables and figures on this page.

SURGERY

The percentage of all cancer patients receiving surgery varies by type of cancer and region. Overall, the percent of Manitoba cancer patients who have received surgery has remained stable across time.

Over 50% of all Manitobans diagnosed with cancer will require surgery.

By Cancer Type

Table 12. Percentage of patients receiving surgery within one year of diagnosis by cancer type.

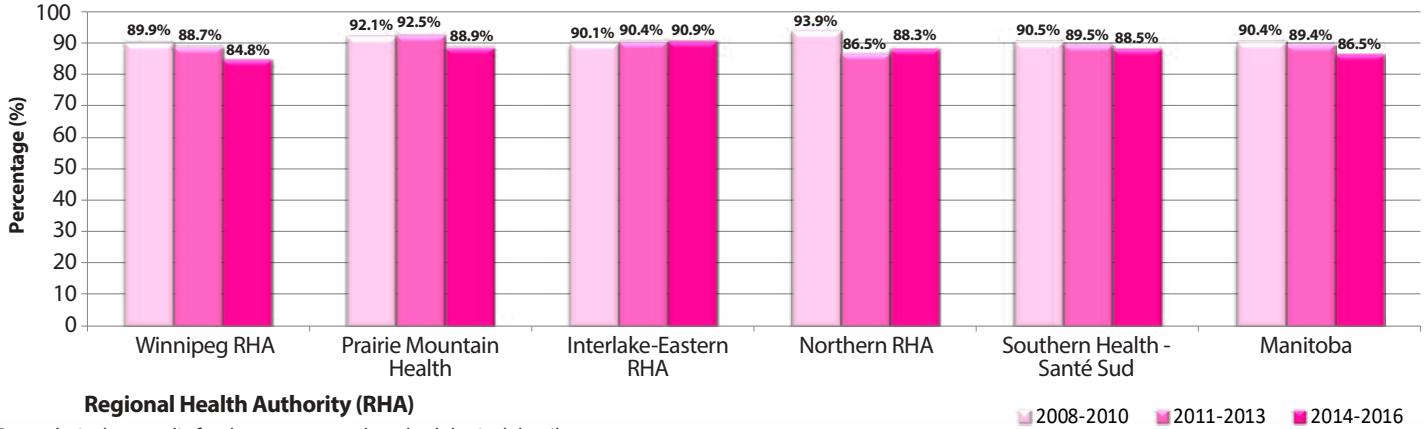
	2014-2016	% Change from 2011-2013	Mean number of cases receiving surgery in one year
Lung	25.3%	No change	234
Colorectal	78.8%	No change	658
Breast (female only)	86.5%	No change	729
Prostate	33.1%	**-14% decrease**	236
All invasive cancers	51.9%	No change	3361

See technical appendix for data sources and methodological details.

By Region

Figure 28. Percentage of patients diagnosed with breast cancer who received surgery within one year of diagnosis, by Regional Health Authority.

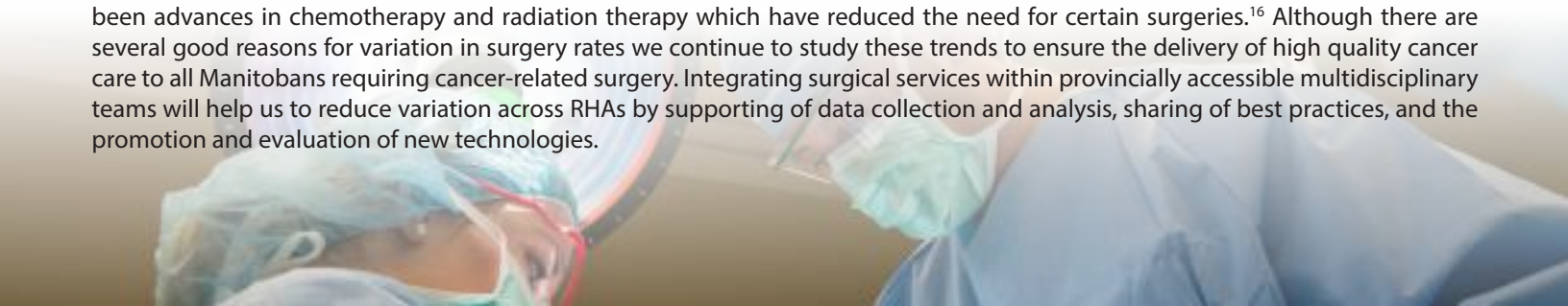
BREAST CANCER



See technical appendix for data sources and methodological details.

Why do we see variations?

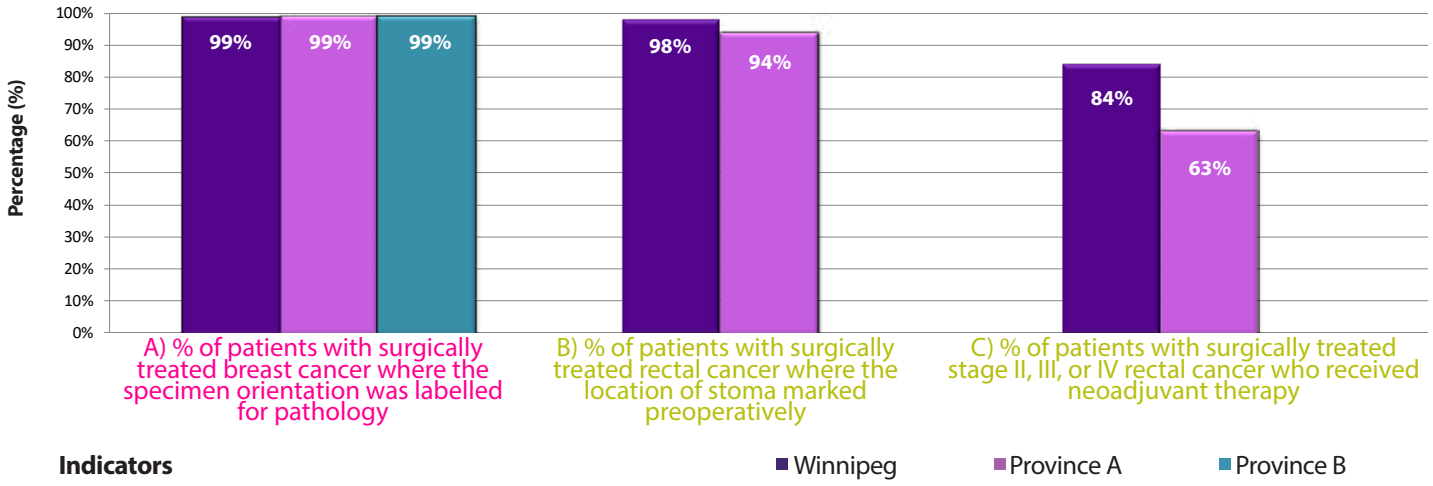
Variations in surgery rates for any type of cancer may reflect the type and stage of disease, the patient's medical fitness for treatment, patient choice, and use of treatment outside of Manitoba which may not be recorded in our data sources. In addition, there have been advances in chemotherapy and radiation therapy which have reduced the need for certain surgeries.[16] Although there are several good reasons for variation in surgery rates we continue to study these trends to ensure the delivery of high quality cancer care to all Manitobans requiring cancer-related surgery. Integrating surgical services within provincially accessible multidisciplinary teams will help us to reduce variation across RHAs by supporting of data collection and analysis, sharing of best practices, and the promotion and evaluation of new technologies.



SURGICAL SYNOPTIC REPORTING

In 2007, the Canadian Partnership Against Cancer (CPAC) and surgeons across Canada collaborated to begin planning for electronic synoptic surgery reporting and a set of evidence-informed pan-Canadian standards **with the aim of improving consistency and comprehensiveness of information directing patient care.** Currently standards have been developed for eight cancer sites – breast, colorectal, lung, prostate, ovarian, endometrial, and thyroid.[42] Manitoba reports on breast, colorectal, lung, and thyroid. Below we highlight 2017 data for breast and rectal cancer from CancerCare Manitoba (CCMB) compared to two other Canadian provinces.

Figure 29. Comparison of data on three surgical synoptic indicators across three provinces (2017).



See technical appendix for data sources and methodological details.

GREATER ADHERENCE LEADS TO BETTER PATIENT OUTCOMES.
Evidence shows a reduction in surgical practice variation can improve quality of care including complication, mortality rates, disease recurrence, and readmission for a second surgery.[1]

BREAST CANCER:

A) PERCENTAGE OF PATIENTS WITH SURGICALLY TREATED BREAST CANCER WHERE THE SPECIMEN ORIENTATION WAS LABELLED FOR PATHOLOGY

This indicator reports the number of patients who underwent breast conserving surgery or mastectomy where the specimen was oriented (or labelled) for pathology against the total number of patients who underwent these surgeries. According to consensus guidelines put forth by the American Society of Breast Surgeons, all indeterminate, high-risk, or confirmed breast cancer specimens should have margins oriented intraoperatively.[43] Orientation of a specimen is crucial for determining the accurate location of a tumour and pathological status of the surgical margins. This minimizes the tissue volume needed to be removed during re-excision. Manitoba data are comparable to other Canadian jurisdictions.[44]

RECTAL CANCER:

B) SURGICALLY TREATED RECTAL CANCER WHERE THE LOCATION OF STOMA MARKED PREOPERATIVELY

This indicator compares the number of patients who underwent surgery with location of stoma marked *preoperatively* compared to the total number of patients who underwent rectal cancer surgery with a stoma. The American Society of Colon and Rectal Surgeons recommends that all patients scheduled for an ostomy should have stoma marked pre-operatively by a trained clinician.[45] Marking the stoma site preoperatively reduces post-operative complications such as leakage, fitting challenges, skin irritation, pain, clothing concerns and can also improve overall quality of life and the patient's psychological and emotional well-being.[45,46]

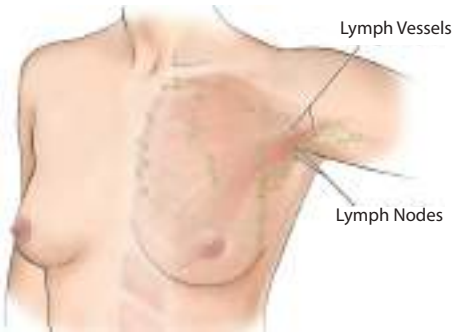
C) PERCENTAGE OF PATIENTS WITH STAGE II, III, OR IV RECTAL CANCER WHO RECEIVED NEOADJUVANT THERAPY

This indicator compares the number of patients with stage II, III, or IV rectal cancer who underwent surgery *and* received neo-adjuvant therapy compared to the total number of patients with stage II, III, or IV rectal cancer who underwent surgery. It is recommended that patients with stage II and III rectal cancer be considered for neoadjuvant therapy.[47] Studies have shown that neoadjuvant therapy lowers the rate of local recurrence relative to surgery alone, improves 10-year survival, and was associated with reduced toxicity.[48-51]

SURGICAL INDICATORS - BREAST CANCER

AXILLA LYMPH NODES AND BREAST CANCER

The lymphatic system, part of our body's immune system, includes a network of lymph nodes and vessels that carry lymph throughout our body. Lymph nodes help the body collect fluid from cells and filter it for re-entry into the blood. The axilla lymph nodes are found in the armpit area. When breast cancer spreads (metastasizes), it will first metastasize to the axillary lymph nodes.

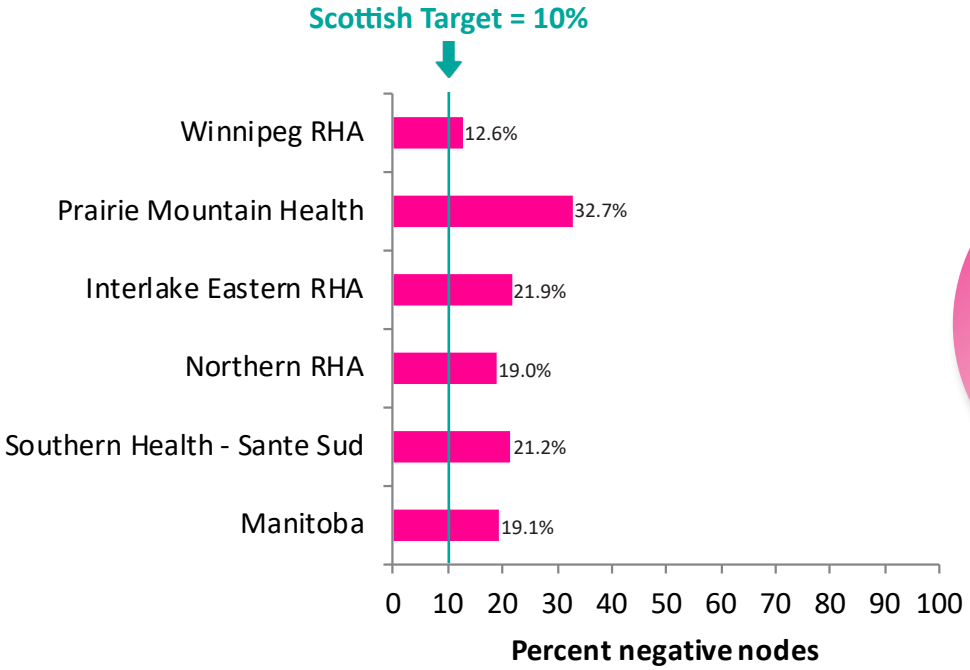


***Source**: Memorial Sloan Kettering Cancer Centre (March 2019). Normal lymph drainage. Webpage: About Your Lumpectomy and Axillary Surgery. [www.mskcc.org].*

AXILLARY CLEARANCE

Surgical axillary clearance involves the removal of all axillary lymph nodes. Potential risks of removing all axillary lymph nodes may include decreased arm mobility and increased lymphedema (localized fluid retention and tissue swelling). Evidence shows that surgical axillary clearance should not be conducted if the cancer is not metastatic (i.e., no positive axillary nodes). Instead, sentinel node biopsy is recommended to target removal of only those lymph nodes confirmed to have cancer. A robust surgery quality indicators system is in place in Scotland which recommends a target of less than 10%.[52]

Figure 30. Percent of invasive breast cancer cases (who did not receive neoadjuvant therapy) that underwent axillary clearance within one year of diagnosis and had no pathological evidence of nodal metastatic disease (no positive nodes), 2010-2014.



See technical appendix for data sources and methodological details.

What does the data tell us?

Axillary clearance rates in Manitoba varied by age, income quintile, where a patient lived, where a patient received their treatment, and stage of cancer. The variability seen may suggest different patterns of care which require further study to ensure that knowledge of care standards and access to equipment for sentinel node biopsy are adequate.

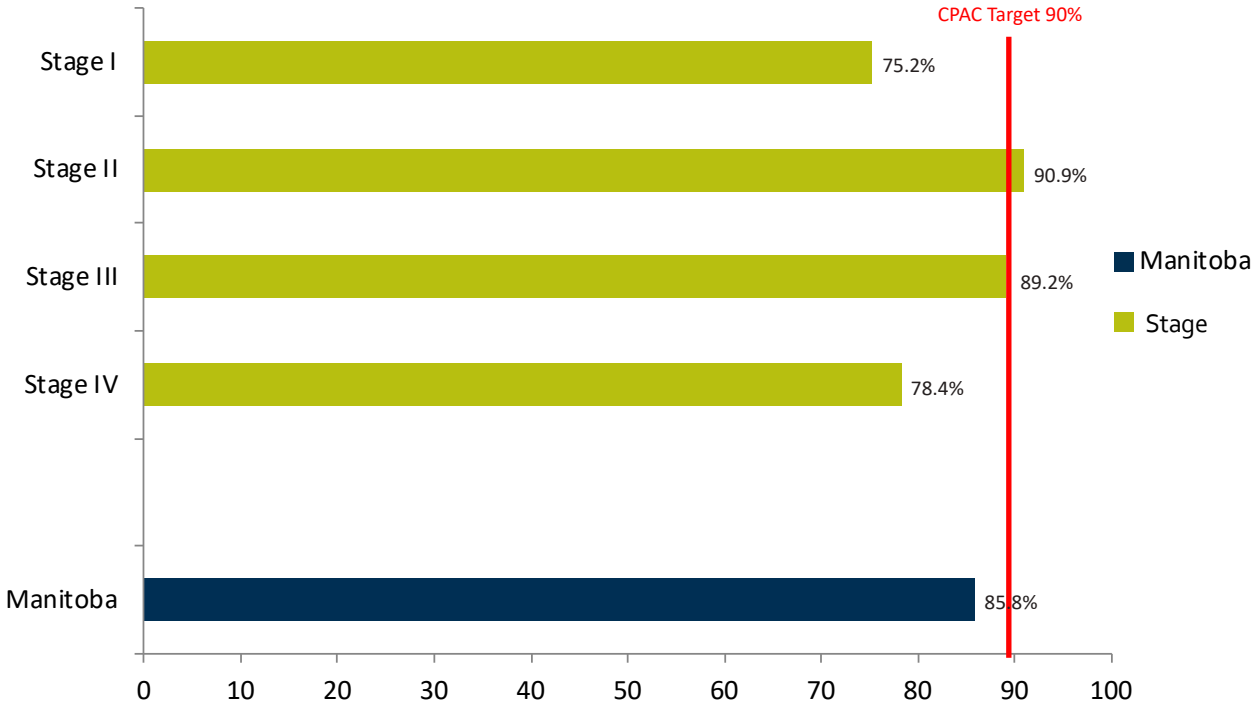
The percentage of women who had axillary clearance is higher than the Scottish target of <10%.

SURGICAL INDICATORS - COLON CANCER

COLON CANCER RESECTIONS - 12 OR MORE LYMPH NODES REMOVED AND EXAMINED

The removal of lymph nodes during surgery for colon cancer is important. The lymph nodes can provide information on the stage of cancer and can inform adjuvant (e.g., chemotherapy) treatment planning. It is also important to have an adequate number of lymph nodes to provide more accurate information about staging. ***The removal of at least 12 lymph nodes provides a threshold at which the chance of false negative nodal staging is reduced.*** Both staging and adjuvant treatment planning can directly impact a patient's prognosis making the removal of lymph nodes during a colon resection critical. This indicator reflects current surgical guidelines, and is regularly reported as part of the Canadian Partnership Against Cancer's pan-Canadian System Performance Report.[53] A national target stipulates that more than 90% of patients with colon cancer should have at least 12 lymph nodes removed and pathologically examined. Surgery is expected within one year of diagnosis.

Figure 31. Percentage of cases with colon cancer that have a resection within one year of diagnosis and have 12 or more lymph nodes removed and pathologically examined, 2010-2014.



Percentage of cases with ≥12 lymph nodes removed and examined.
See technical appendix for data sources and methodological details.

What does the data tell us?

The above data for 2010-2014, highlight that overall Manitoba was very close to achieving the national target. This means that nearly 90% of individuals with a colon cancer diagnosis who underwent a resection had at least 12 lymph nodes removed during their surgery. This is approximately a 10% improvement since 2008.[54] Compared to the most recent pan-Canadian data based on 2014 diagnoses, Manitoba has shown continued improvements and is amongst the top performing provinces.[53]

Stage I and IV cases were less likely to have at least 12 lymph nodes removed. It is possible that some Stage IV surgeries were palliative resections where the removal of a large number of lymph nodes is not required. Stage I includes transanal endoscopic microsurgeries (TEMs) surgeries, which do not always remove lymph nodes during the procedure. The percentage of cases that had at least 12 lymph nodes removed did not differ by RHA of residence, RHA of first surgery, or sex.

Manitoba is a top performing province.[53]

This System Performance series now includes a spotlight report on **Cancer Surgery Quality in Manitoba**. You will find this new report on the CancerCare Manitoba website!

CLINICAL PRACTICE GUIDELINES

Indicator: Percentage of patients diagnosed with stage I or II breast cancer who received post-operative radiation therapy within 270 days following breast-conserving surgery.

Why measure this?

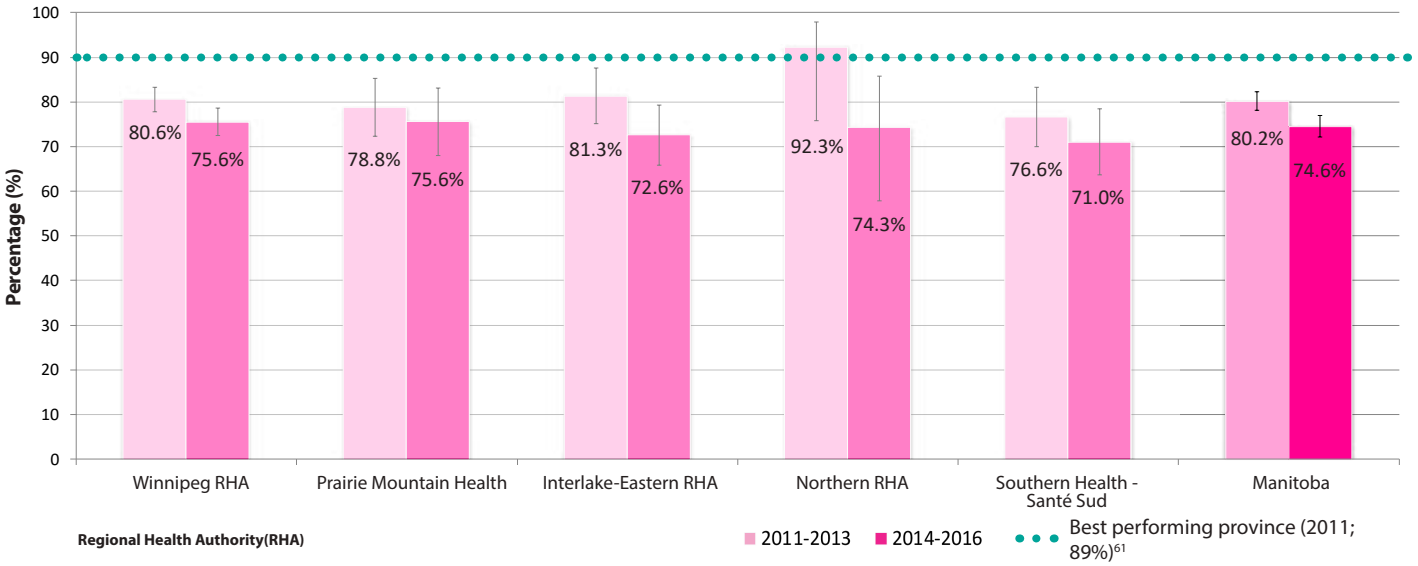
Women diagnosed with stage I and II breast cancers often undergo surgery, but they have two choices:

A. Mastectomy (surgery to remove the entire breast) or
B. Breast Conserving Surgery (surgery to remove the tumour along with a margin of non-cancerous breast tissue, also known as a lumpectomy) followed by whole-breast radiation therapy (breast conservation therapy).[55]

Breast conservation therapy is less invasive than mastectomy with evidence showing lower morbidity, improved cosmetic appearance, better psychological outcomes, and similar survival outcomes to mastectomy.[56-60] With comparable outcomes, it is recommended that the choice between mastectomy and breast conservation therapy should be made by the patient based on an informed understanding of risk, benefits, and quality of life for each option.[61]

In some cases women do not receive radiation therapy and therefore may not have an equal survival benefit to women receiving mastectomy. This indicator measures how many women received treatment according to evidence-based clinical practice guideline recommendations. There are many reasons why a patient may not receive radiation therapy after breast-conserving surgery. These include both patient preferences and clinical factors.[62] For example, recent evidence (2017) suggests radiation after breast conserving surgery may not result in significant survival benefits in older patients with early breast cancer.[63]

Figure 32. Percentage of early stage (stage I or II) breast cancer patients treated with radiation within 270 days of breast conserving surgery, by Regional Health Authority (RHA), 2011-2013 and 2014-2016.



Note: *Evidence shows clinical benefit is maintained for patients receiving radiation therapy within 270 days of breast conserving surgery. See technical appendix for data sources and methodological details.*

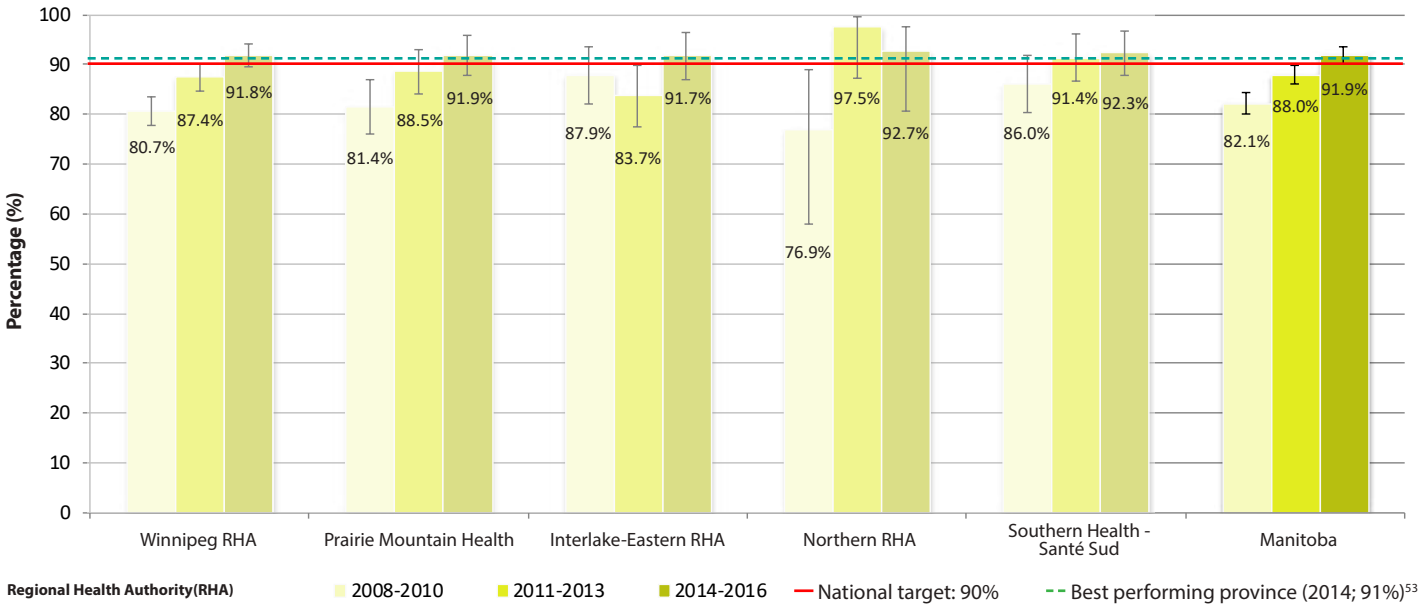
67% of women with invasive breast cancer in Manitoba received breast conserving surgery instead of mastectomy, one of the best rates in Canada.[64]

8 of 10 Canadian provinces report on this indicator through The Canadian Partnership Against Cancer.[61]

CLINICAL PRACTICE GUIDELINES

Indicator: Percentage of colon resections with 12 or more lymph nodes removed and examined for cases diagnosed within a specified time period.

Figure 33. Percentage of colon resections with 12 or more lymph nodes removed and examined by Regional Health Authority (RHA), 2008-2010, 2011-2013, and 2014-2016.



** The most current data available for other provinces is from 2014.*
See technical appendix for data sources and methodological details.

The removal and examination of 12 or more lymph nodes is associated with improved survival as it leads to more accurate staging, and therefore more appropriate treatment planning.[65-67] Most clinical guidelines recommend a minimum of 12 lymph nodes be removed and examined by a pathologist to determine the extent of cancer spread to the lymph nodes.[68,69]

Wait, this looks very familiar…

Yes, you've seen this before. This indicator is one of our surgical quality indicators reported on page 45! The only differences are we report these data by stage for a different timeframe (2010-2014) in the surgical indicators section. Here we focus on variation across regions and time. ***Using this example we can see how measurement can inform clinical practice.***

Measuring provincial treatment patterns can identify variations and inform opportunities for quality improvement at the provincial level.[53, 61] Across Manitoba and Canada we have seen improvements over time. In fact, all five Manitoban RHAs met or exceeded the National target for 2014-2016! This is a great improvement since 2008-2010 when no RHA met the target. This upwards trend has important implications to patients and their cancer outcomes. It leads to better cancer staging and influences treatment planning leading to improved survival for Manitobans.

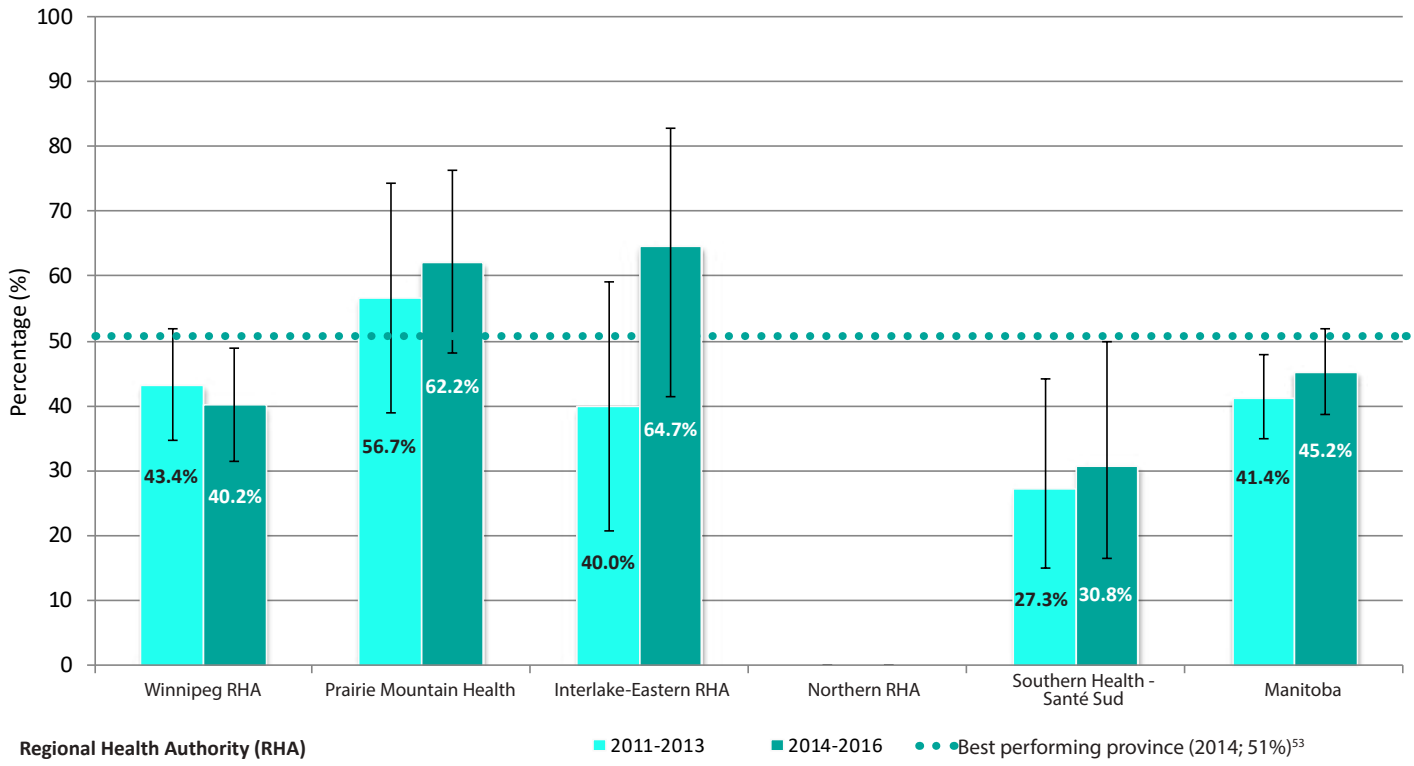
5 of 5
RHAs achieved the 90% target

8 of 10 Canadian provinces report on this indicator through The Canadian Partnership Against Cancer.[61]

CLINICAL PRACTICE GUIDELINES

Indicator: Percentage of patients with stage II or IIIA non-small cell lung cancer (NSCLC) who received guideline-concordant post-operative chemotherapy within 120 days of surgical resection.

Figure 34. Percentage of stage II or IIIA non-small cell lung cancer patients who received chemotherapy following surgical resection, by Regional Health Authority (RHA), 2011-2013 and 2014-2016.



Notes: *The most current data available for other provinces is from 2014. Data for the Northern RHA is suppressed due to small counts. See technical appendix for data sources and methodological details.*

Why is this important to measure?

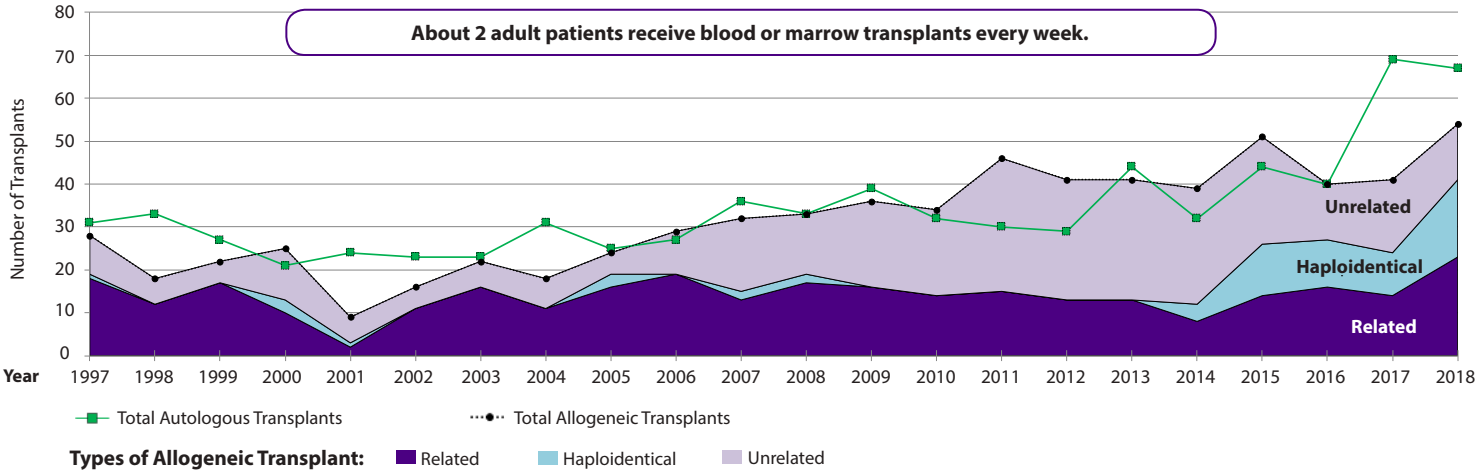
Clinical practice guidelines recommend post-operative chemotherapy for patients with stage II or IIIA NSCLC over surgery alone based on evidence of improved outcomes (i.e., disease-free and overall survival) and lower recurrence rates.[70-74] Regional data can be harnessed to identify variations in practice which can be addressed through quality improvement initiatives.[61] In Manitoba, we see variation across provincial RHAs, but in most regions there have been improvements since 2011-2013. Provincial data from The Canadian Partnership Against Cancer (CPAC) has shown that our reporting is similar to other provinces.[53] CPAC data reported by age group tells an interesting story. They found that patients aged 18-59 with stage II or IIIA NSCLC were much more likely to receive post-operative chemotherapy than their counterparts aged 70-79. It is known that older patients are more likely to have conditions that make chemotherapy difficult to tolerate, but evidence of improved survival does support post-operative chemotherapy for individuals up to age 80.[53, 75-77]

6 of 10 Canadian provinces report on this indicator through The Canadian Partnership Against Cancer.[61]

BLOOD AND MARROW TRANSPLANT

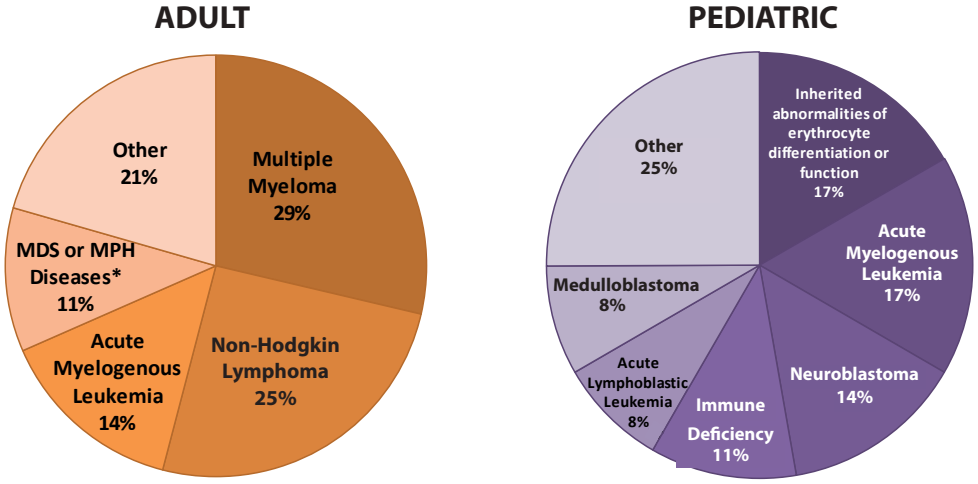
Blood and marrow transplantation is a medical procedure used to treat a variety of oncological and immunological disorders. Stem cells are taken from either the patient living with cancer (autologous) or from a compatible healthy donor (allogeneic). Chemotherapy and/or radiation are then given to the patient to prepare them to receive stem cells. The stem cells are then transplanted back into the patient allowing healthy blood cells to form and boost the patient's defense against infection. Transplants have been used worldwide to treat patients diagnosed with leukemia, aplastic anemias, lymphomas, multiple myeloma, immune deficiency disorders, autoimmune diseases, and some solid tumors. In the past it was necessary for donors and recipients to have closely matching tissue types based on human leukocyte antigens; however over the last decade various centres, including Manitoba, have used a new strategy to perform allogeneic transplantation using haploidentical donors. Haploidentical allogeneic stem cell transplantation allows a half-matched healthy first-degree relative to serve as a donor. This has made it much easier to find suitable donors and is much cheaper for the healthcare system compared to using donors that are unrelated to the recipient. The Manitoba Blood and Marrow Transplant (MBMT) Program has provided adult and pediatric residents of Manitoba access to high quality blood and marrow transplant therapy since 1991.

Figure 35. Number of autologous and allogeneic transplants completed at CancerCare Manitoba (CCMB) by year with breakdown for type of allogeneic transplantation, 1997-2018.



Notes: *Data reflect an upward trend in the number of transplants performed at CCMB over time. We have seen a shift from about 50 transplants per year between 2000-2005 to more than 80 per year between 2010-2015. We expect the number of transplants to exceed 100 per year moving forwards with some natural year-to-year variation (as seen in 2016). An increase is expected based on two factors. First, more autologous transplants are being completed for individuals diagnosed with multiple myeloma based on evidence from several randomized-controlled trials showing benefits of up-front transplantation, the use of transplantation in older adults, and more effective induction regimens. Second, an upward trend in the number of allogeneic transplants is being driven by the introduction of protocols for alternative donors (e.g. unrelated donors (2005 onwards); haploidentical donors (2015 onwards)).*
See technical appendix for data sources and methodological details.

Figure 36. Indication for transplant in adult and pediatric (0-18 years) patients, 2016-2017.



**Myelodysplastic (MDS) or Myelopliferative (MPN) Diseases.*
See technical appendix for data sources and methodological details.

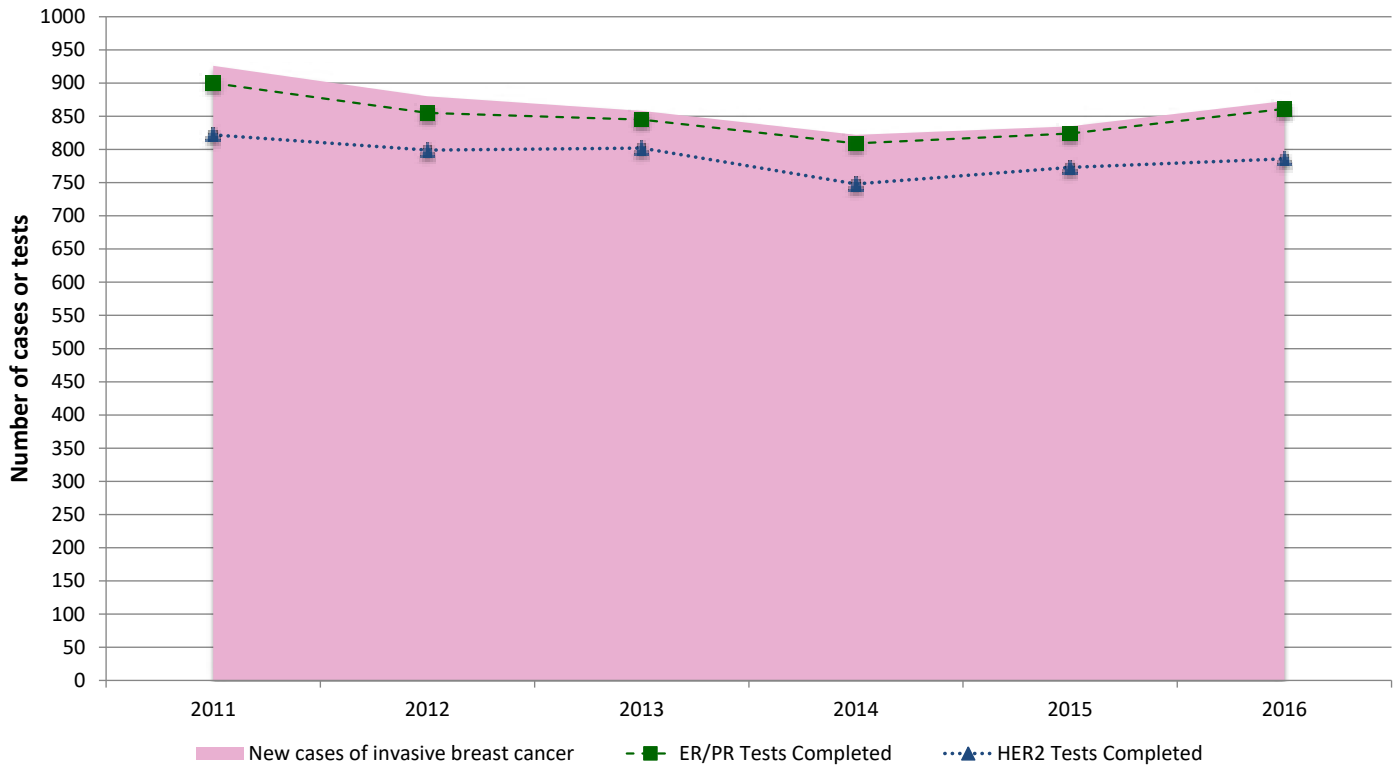
Median wait times for adult autologous lymphoma and myeloma patients from apheresis to stem cell infusion was approximately 35 days for the first three quarters of 2018.

PREDICTIVE AND PROGNOSTIC MARKERS - BREAST CANCER

Over the last two decades we have made great progress in what we know about the molecular basis of tumour progression and treatment response. Cancer biomarkers, found in the blood or urine, consist of substances produced by cancers or are released by the body when cancer is detected. These markers are useful in clinical management of cancer as they can provide information leading to faster and more accurate cancer detection and inform treatment decisions to ensure a patient receives the most efficacious treatment.[78,79] CancerCare Manitoba (CCMB) oncologists test for various molecular markers depending on the type of cancer diagnosed. We will be adding new and different types of testing over the next few years.

BREAST CANCER: Every woman who receives an invasive breast cancer diagnosis in Manitoba will receive molecular testing – estrogen receptor (ER), progesterone receptor (PR), and HER2. This information is critical for treatment planning at all stages of the disease.

Figure 37. Trends in molecular testing in Manitoba for new cases of invasive breast cancer, 2011-2016.



Note: *Molecular testing may not be recommended for all new breast cancer patients. Some reasons for ineligibility may include older age, existing comorbidities, and stage of disease (and related treatment plan).*
See technical appendix for data sources and methodological details.

9.4% of all Manitoban women with a breast cancer diagnosis were diagnosed with triple negative breast cancer (2014-2016). Triple negative breast cancer (negative for ER, PR, and HER2) often leads to poorer prognosis, more advanced disease at diagnosis, and patients tend to be younger. The Canadian Partnership Against Cancer's 2015 report on staging compares rates of triple negative breast cancer across Canada for 2010. Across Canada scores ranged from 8.2% in Alberta and 12.8% in New Brunswick.[80] Manitoba's rate of triple negative breast cancer was 12.0% in 2010. Manitoba rates appear to be declining since 2010.

OncotypeDx is requested at the oncologist's discretion in some women with a new diagnosis of ER/PR+, HER2- breast cancer treated with surgery who may benefit from additional chemotherapy to prevent disease recurrence. The OncotypeDx test was funded for routine use in the province in 2018 and the Manitoba Cancer Registry started collecting data at that time. We look forward to highlighting this testing in our next Manitoba Cancer System Performance Report.

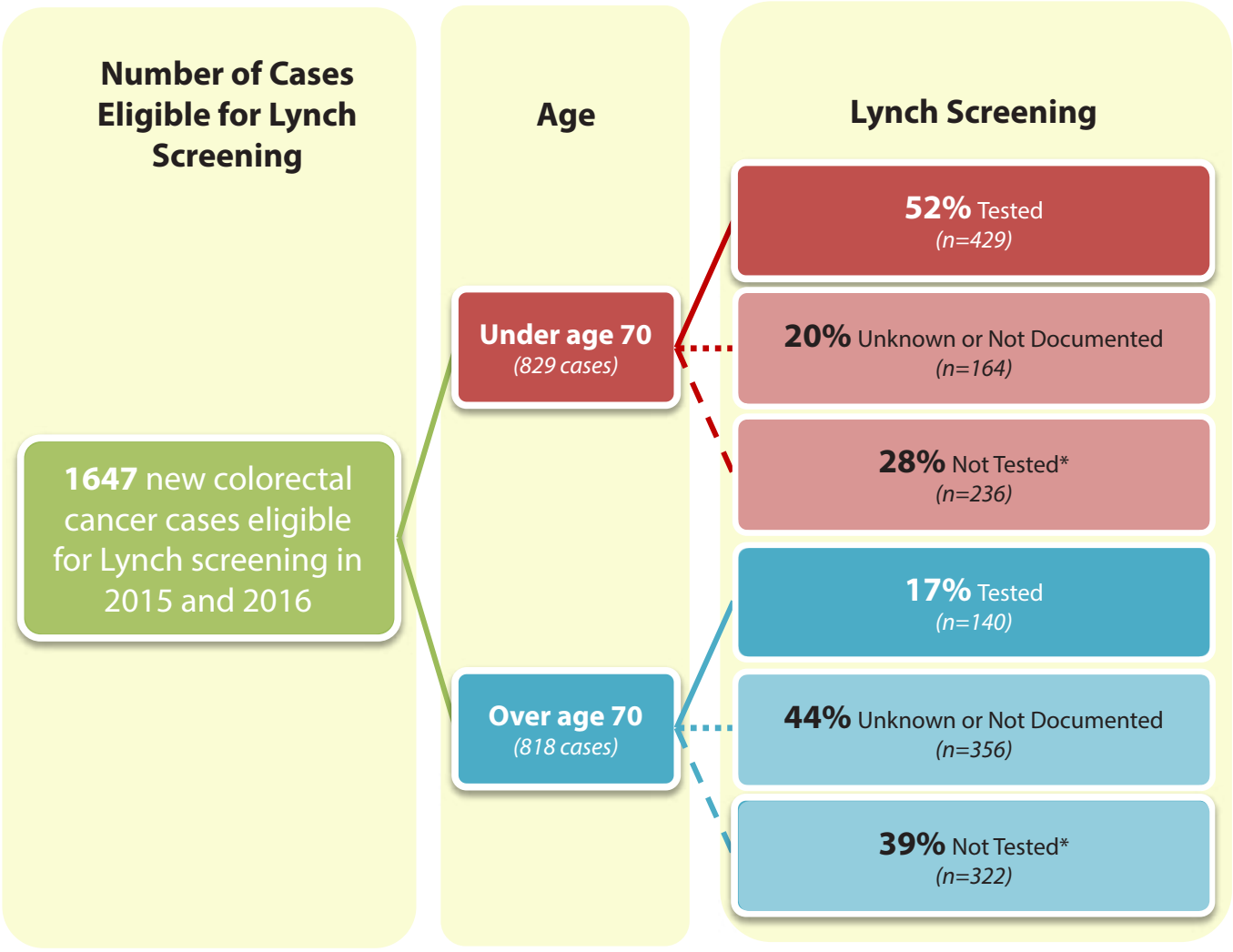
PREDICTIVE AND PROGNOSTIC MARKERS - COLORECTAL CANCER

COLORECTAL CANCER: CCMB oncologists aim to provide Lynch screening to every individual under the age of 70 diagnosed with colorectal cancer in Manitoba. Although we have seen consistent improvements to Lynch screening rates in Manitoba since 2011 we continue to work on improving these screening rates and improving the quality of our documentation.

75%
of individuals who received
Lynch screening were under the age of 70.

35%
of all new colorectal patients received
Lynch screening in 2015 and 2016.

Figure 38. Flow chart showing the number of new colorectal cases eligible for and receiving Lynch screening in 2015-2016.

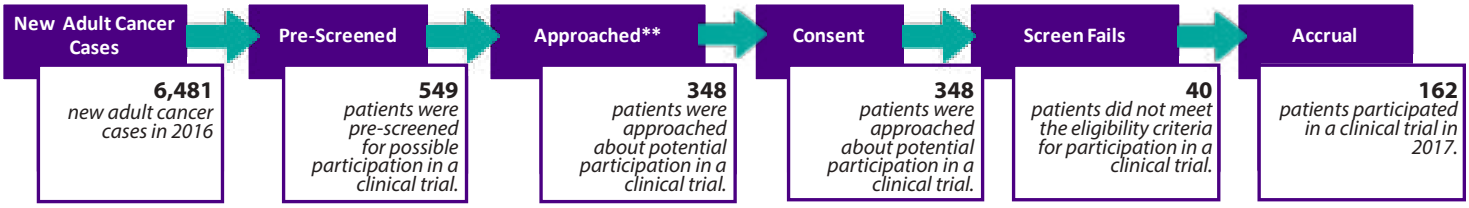


*Lynch screening may not be appropriate for all patients (e.g., stage IV diagnoses). In addition, some cancers are not eligible for Lynch screening (e.g., cancers of the appendix and cancers where the specific site has not been identified).
See technical appendix for data sources and methodological details.

CLINICAL TRIALS

Clinical trials are building blocks that help cancer researchers find new ways to improve clinical care and quality of life for individuals living with cancer. They provide new insights about the effectiveness and safety of new approaches to manage cancer. Research has established that patients receiving care at centres with clinical trials programs have better health outcomes (e.g. improved survival and quality of life) than those without clinical trials programs. It is likely that this difference is due to the integration of high quality process and delivery of care, including higher adherence to treatment guidelines.[81,82]

SCREENING PROCESS FOR CLINICAL TRIALS PARTICIPANTS IN ADULTS (2017 DATA)



** Confirmed cases for 2017 are not available until mid-2019, but are reasonably estimated using 2019 cases.*
***This reflects the number of patients who were approached by CancerCare Manitoba Clinical Trials Unit and does not reflect discussions with a physician or nurse where the clinical trials unit was not informed (i.e., patient is not interested, etc.). All pediatric patients are approached about clinical trials.*
Note: *Patients are not always enrolled to clinical trials in the same year as they move through the other screening steps. This means the total number of patients consenting minus screen fails may not equal the number of patients entered on trial that year.*

In 2017, 162 *adult* patients participated in a clinical trial. This was a 49% increase from 2016.

In 2017, 167 *pediatric* patients participated in a clinical trial. This was an 11% increase from 2016.

In 2017, there were 60 *adult* clinical trials open for participation. This was a 30% increase from 2016.

In 2017, there were 52 *pediatric* clinical trials open for participation. There was no change from 2016.

CLINICAL TRIAL PARTICIPATION RATES:

Table 13. Percentage of patients enrolled into clinical trials to the number of new cancer cases, all cancers, 2017 enrollment year.

Pediatric[a]	27.6%
Adults[b]	2.5%

[a]Pediatric enrollment only reflects interventional trials, [b]The denominator for adults is the confirmed number of new cancer cases for 2016.

WHY IS THERE A DIFFERENCE?

Research has always been inextricably linked to the clinical care of pediatric patients. All members of a child's clinical care team play a role in operationalizing a pediatric clinical trial. In addition, there are relatively few children diagnosed with cancer each year (compared to adults), so clinical teams can spend more time working with the specific needs of each patient. The system uses a different model for adult patients. The adult model does not integrate clinical trials into clinical care at the same level. Although more adult clinical trials are open now than ever before the ratio of adults participating in these is low in Manitoba and across the country.[21]

Data from the 2016 Ambulatory Oncology Patient Satisfaction Survey (AOPSS) told us that 94% of respondents felt either completely or somewhat comfortable talking to staff about questions they had about new clinical trials or new treatments for their cancer. This is similar to than the national average of 95%.

What about AYA?

Historically few clinical trials have targeted adolescents and young adults (AYA). A recent paper identified that accrual to interventional treatment trials for 18-30 year old individuals in Manitoba is very low – 0.4%.[83] These trials included AYA individuals with a diagnosis of leukemia, lymphoma, melanoma, sarcoma, or brain cancers. Improving access to clinical trials for AYAs is a priority across Canada. CCMB is uniquely situated to improve this rate because it is one of the few cancer centres in Canada that has both pediatric and adult specialists working under one roof. ***As of February 2019, our Clinical Trials Unit had 14 trials open that included the AYA age group.*** We are currently evaluating the challenges and opportunities associated with enrolling AYA patients onto clinical trials. This involves merging two models of care into a structure that is unique to this patient population. A phased approach to enhance AYA enrollment is planned starting with a clinical trial targeting the lymphproliferative disease site group. Following evaluation of this pilot, our goal is to expand the clinical trial care model to other disease site groups.

See technical appendix for data sources and methodological details.

DEVOTED TO HIGH QUALITY CANCER CARE

CancerCare Manitoba (CCMB) wants to provide high quality, safe care to all cancer patients across the province. We aim to establish a just culture of safety where the provision of safe care is a core value for the organization. We accomplish this aim through the measurement of several quality indicators, such as hand hygiene, but also put a large emphasis on patient engagement. We believe understanding the patient experience is valuable to all planning, care delivery, and the ongoing evaluation of the services we provide to Manitobans. By engaging with patients on all manner of tasks we are enriching our understanding of what matters most to patients and how we can enhance the patient experience.

90%

HAND HYGIENE COMPLIANCE, 2017

In 2016 hand hygiene compliance was 83%.
Our target is 90% or higher.

Hand hygiene is one of the most important ways to reduce health care-associated infections. However, compliance with accepted hand hygiene practices is often poor. Studies have shown improving hand hygiene compliance can decrease healthcare-associated infections.[84]

92%

SAFE SURGICAL CHECKLIST COMPLIANCE, 2017

In 2016 safe surgical checklist compliance was 91%.
Our target is 95% or higher.

It is critical that risks associated with surgical procedures are mitigated to avoid harm to patients. The safe surgical checklist helps to improve patient safety by reducing the chances of complications post-surgery and to improve health outcomes.

Patient Engagement

The provision of person-centred care is fundamental to the care we provide. We want to ensure our relationships with patients are nurtured. Recently Accreditation Canada has renewed its focus to organizational collaboration with patients to meet all accreditation standards. For those reasons, we invite many patients and their families to engage with us on various projects, discussions, meetings, and strategic planning sessions. To coordinate these efforts the Patient and Family Advisory Volunteer Program was formed in 2014. Here are some examples of how we engage with patients:

We are devoted to patient engagement.
Between July 2017 and June 2018 there were
71 ***patient advisors on*** **28** ***new projects.***

88% ***of respondents reported feeling completely safe while receiving care at CCMB in the 2016 Ambulatory Oncology Patient Satisfaction Survey (AOPSS).***

There was little variation in "feeling safe" across Regional Health Authorities of residence, age, gender, or type of treatment received.

In February 2018, patient-driven hand hygiene audits identified:

72%
of providers washed their hands before patient contact.

60%
washed their hands afterwards

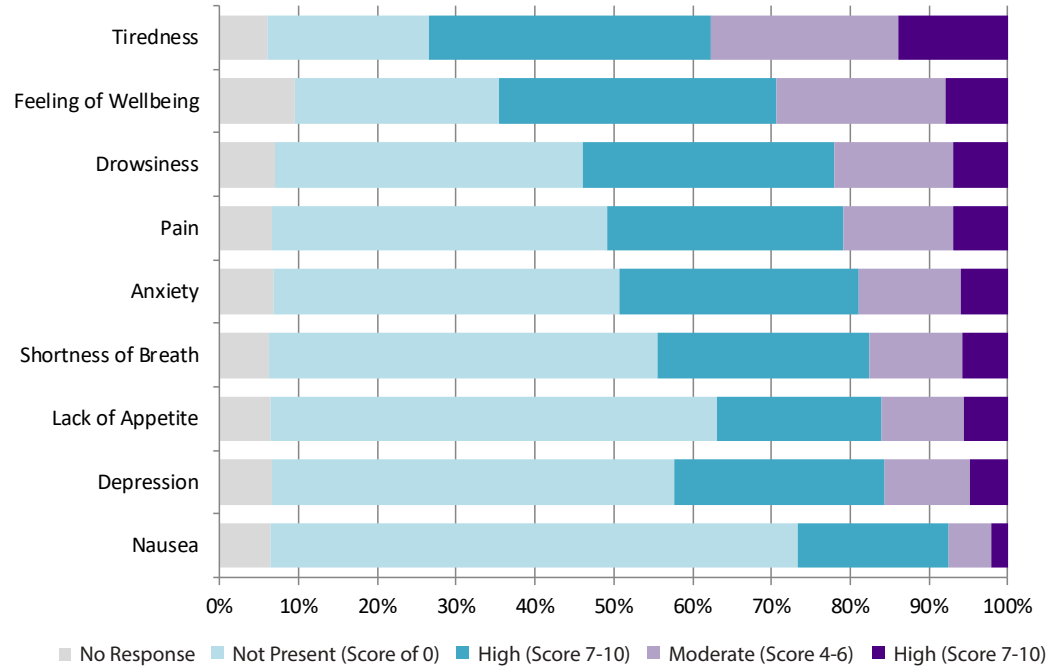
NEW Giving the right care to the right patient at all times is important. CCMB is strongly committed to the safety of patients and their families. We understand that part of providing safe care is correctly identifying patients prior to any treatment or service provision. Soon we will begin inviting patients to complete a survey at their visits to evaluate whether their healthcare providers asked to confirm their identification.

PAIN AND SYMPTOM MANAGEMENT

At CancerCare Manitoba (CCMB) we strive to deliver the best cancer services to our patients and their families. It is important to us that we engage a person-centred approach to caring for our patients' needs. This type of approach intentionally focuses on the specific needs of individuals. To understand our patients' needs we use patient-reported outcome measures. One such tool is the Comprehensive Problem and Symptom Screening (COMPASS) Questionnaire. This screening tool is used routinely across Manitoba's cancer clinics at physician visits. It has become a standard of care for CCMB and helps us to identify key patient concerns so we can respond with appropriate and timely care.

96,863 COMPASS questionnaires were completed by cancer patients across Manitoba in a 2-year period, 2016-2017. The following figure identifies the severity of symptoms reported in the Edmonton Symptom Assessment Survey – revised (ESAS-r) portion of the questionnaire.

Figure 39. Scores for ten commonly experienced cancer symptoms experienced by patients living with cancer, self-reported through ESAS-r on the COMPASS patient-reported outcome screening tool, 2016-17.



See technical appendix for data sources and methodological details.

When surveyed, 77% of respondents told us their healthcare team *always* or *usually* worked with them to make a plan to help them manage symptoms or concerns they identified on COMPASS. There was little variation between health regions.

CCMB's Pain and Symptom Clinic provides a multidisciplinary approach to the assessment and treatment of patients who have cancer or treatment-related symptoms that have proven difficult to resolve. ***In 2017, the clinic received 393 unique referrals which was an 18% increase from 2016.*** This specialized care for concerning symptoms is available to all cancer patients in the province at any point of their cancer experience.

In the 2016 Ambulatory Oncology Patient Satisfaction Survey we asked patients to tell us whether they felt their care providers did everything they could to control their pain or discomfort. Many individuals in Manitoba (70%) and Canada (72%) provided a positive response to this question.

The COMPASS questionnaire includes the Canadian Problem Checklist (CPC) with a section on dignity. A patient can select dignity concerns they experienced within the past week including:

- feeling a burden to others,
- feeling a loss of control,
- losing meaning or purpose in life,
- not feeling respected or understood,
- not feeling valued or worthwhile,
- feeling embarrassment or shame, and
- no longer feeling like the person they once were.

By selecting one or more of the dignity concerns a response is triggered to ensure the patient receives appropriate and timely care they require. ***Between January 2016 and December 2017 14,619 COMPASS questionnaires contained a dignity concern. This made up 15% of all COMPASS questionnaires completed during that timeframe.***

Urgent Cancer Care Clinic meets the specialized needs of cancer patients experiencing cancer or treatment-related symptoms or side effects. The clinic reduces the need for patients to go to hospital emergency departments when in need of specialized cancer care. CancerCare Manitoba also hosts a **Cancer Helpline** phone service for cancer patients requiring assistance in managing cancer or treatment-related side effects.

Between April 2017 and March 2018 there were 2,293 visits to the Urgent Cancer Care Clinic and 1,139 calls to the Cancer Helpline.

BRINGING CANCER CARE TO COMMUNITIES OUTSIDE WINNIPEG

The Community Oncology Program is a provincial program of CancerCare Manitoba (CCMB) that works to bridge partnerships among primary care, specialists, community, and regional partners. The Community Oncology Program sets standards of care for our 16 Community Cancer Programs (CCPs) to deliver cancer services across the cancer continuum and is responsible for the ongoing training and education of health care providers related to cancer care. Our goal is to build capacity and improve access to quality cancer care for all Manitobans.

Where are treatments completed?

The proportional dot map shows the number of intravenous (IV) chemotherapy treatments that were delivered at Community Cancer Program sites (CCPs) or Regional Cancer Program sites (RCPs) to patients who live within the related Regional Health Authority (RHA) (have an associated postal code). ***Essentially the figure tells us where people went for treatment based on where they live.*** For example all treatments with the bright red colour received treatment in Thompson. This figure emphasizes the reach of the IV chemotherapy delivery in the province which is one example of CancerCare Manitoba's breadth of coverage to rural individuals living with cancer. It highlights that Manitobans often receive their chemotherapy close to home.

Across the province, 68% of patients treated with IV chemotherapy outside of Winnipeg were provided this service within the same RHA they lived.

Figure 40. Proportional dot map showing Community Cancer Program intravenous (IV) chemotherapy delivery outside Winnipeg Regional Health Authority (WRHA), April 2016 - March 2018.

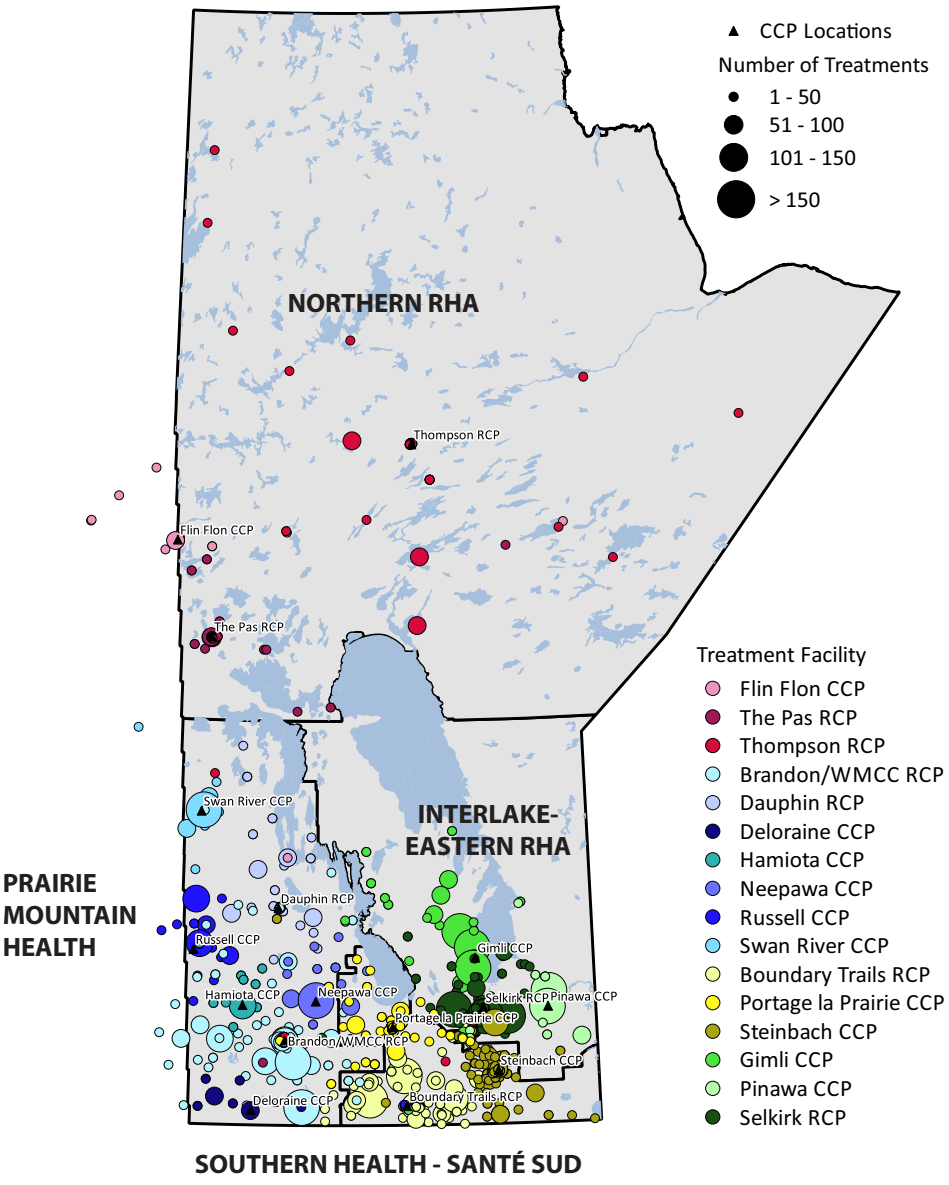


Table 14. Age-standardized incidence rates (2014-2016) and number of new cancers (2016) by Regional Health Authority (RHA).

	Winnipeg RHA	Prairie Mountain Health	Interlake - Eastern RHA	Southern Health - Santé Sud	Northern RHA	Manitoba
Age-standardized incidence rate, 2014-2016	470 per 100,000	482 per 100,000	512 per 100,000	471 per 100,000	526 per 100,000	478 per 100,000
Number of New Cancer Cases, 2016	3,737	911	758	822	253	6,481

***Note**: Age-standardized incidence rates by Regional Health Authority are reported for a three-year period (2014-2016) to stabilize estimates for smaller populations. See technical appendix for data sources and methodological details for the figure and table shown on this page.*

MEETING YOUR NEEDS CLOSER TO HOME

Through a strong partnership between the Community Oncology Program and Manitoba's Regional Health Authorities (RHAs), we are able to better meet the needs of individuals living with cancer across Manitoba.

8,108
intravenous (IV) chemotherapy sessions delivered outside Winnipeg in 2017/18.

This makes up 28% of all provincial IV chemotherapy delivery and is a 5% increase from the previous year.

Brandon's Western Manitoba Cancer Centre has been providing radiation treatment to Manitobans since June 2011. Between June 2011 and March 2017 **over 2,000 patients** were able to receive their treatments closer to home. This equates to approximately **32,000 radiation treatments!**

Table 15. Utilization statistics for the Community Oncology Program.

	2017-18	% Change (2016-17)
Total physician visits to community cancer program sites *Excludes radiation oncologist visits*	14,704	No change
Outpatient treatments at community cancer program sites *Outpatient treatments include any anti-cancer treatment including IV chemotherapy, bladder instillation, intramuscular injection, subcutaneous injection, other IV treatment, IV fluid administration only, blood product transfusion, and oral treatment support*	16,420	No change
New patient referrals to a community cancer program	1,071	No change

Note: *Percentage changed is identified for any change of + or - 10%. Otherwise 'No change' is identified.*
See technical appendix for data sources and methodological details.

In 2017/18* patients and their families were able to save over 13.3 million kilometres in travel due to Community Cancer Programs!

**Fiscal year data based on outpatient visits (not including radiation treatment visits completed at Brandon's Western Manitoba Cancer Centre)*

We hear you and appreciate your feedback. Results from the 2016 Ambulatory Oncology Patient Satisfaction Survey (AOPSS) revealed that across Manitoba only **52%** of respondents felt that their care providers had taken their family or living situation into account when planning treatment. This was low across all regions with a range of **46%** in the Northern Health Region to **62%** in Prairie Mountain Health. Winnipeg had a low proportion at **49%**.

Only **48%** felt their care providers considered their travel concerns when planning treatment. Regional variation ranged between **46%** in Interlake-Eastern RHA to **59%** in Southern Health-Santé Sud. Winnipeg had the lowest proportion at **35%**.

NAVIGATION

The cancer experience is often complex and overwhelming for patients and their families. Every Manitoban living with cancer has access to an expert cancer navigation team through CancerCare Manitoba's (CCMB) Provincial Cancer Referral and Navigation Service. This team includes nurse navigators, referral clerks, referral nurses, and psychosocial oncology clinicians specialized in providing information and support to patients as they navigate through the cancer care system. The goal of this service is to improve the patient experience by connecting patients and their families with compassionate high-quality, and timely cancer care.

1,935

New patient referrals to Rural and Winnipeg Navigation, April 2017 to March 2018.

Rural = 1,384 **Winnipeg = 551**

This was an 18% increase since the previous year (2016/17) reflecting expansion of the provincial service. This rate is expected to continue rising due to a growing program.

Since inception of the Community Oncology Program (2011) there have been

7,652

new patient referrals to Rural and Winnipeg Navigation!

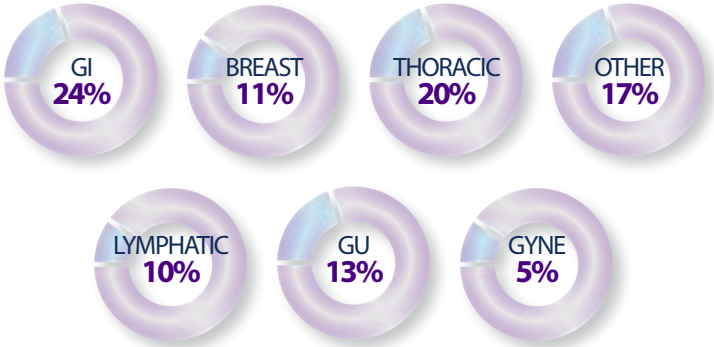
53%

of new patient referrals to Rural and Winnipeg Navigation come from **primary care providers.**

5%

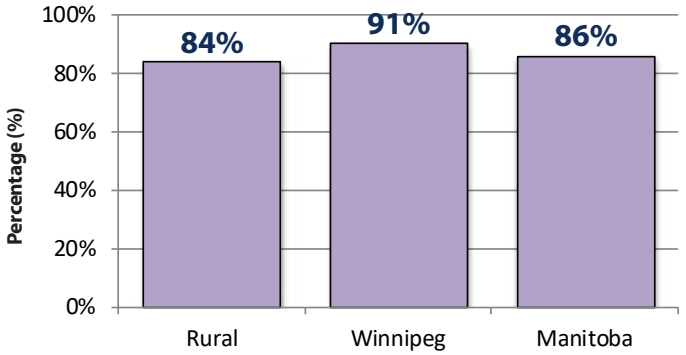
of new patients did not have a primary care provider.

Most common cancers associated with new patient referrals to Rural and Winnipeg Navigation.



Note: *gastrointestinal (GI), genitourinary (GU), gynecological (GYNE)*

Figure 41. Percentage of new referrals that met a target of 48 hours between a) the date the referral was received and b) first contact with patient.



Over **85%**

of all new patient referrals to Rural and Winnipeg Navigation were at the **beginning of their journey** with cancer.

OUTCOMES

"From the outset, the treatment and attention I received at CancerCare Manitoba was outstanding. I will always remember a young intern promising me, at initial check-in as I was retching painfully, that he would ensure I "didn't slip through the cracks". I certainly did not. I have been off chemo for twenty six months, now. Blood tests reveal "no trace!"
- CCMB patient.

Our mission at CancerCare Manitoba is to reduce, and where possible, eliminate the burden of cancer on the people of Manitoba. We want to see a world free of cancer. Cancer epidemiology, or the study of cancer in a population, helps us to measure changes in cancer trends and allows us to compare ourselves to other cancer agencies. Understanding cancer outcomes such as mortality, survival, and prevalence informs healthcare planning.

CANCER MORTALITY

Cancer mortality reflects the number or proportion of deaths due to cancer in a population.

The same things that drive cancer incidence (the number of new cases in a given year) drive cancer mortality (the number of deaths due to cancer in a given year). Mortality rates can be used to measure success in reducing the burden of cancer on a population. Cancer mortality varies by type of cancer and is typically highest when the disease is found at late stage, when treatment options are fewer and less effective. We have seen significant decreases in cancer mortality in Manitoba across time. Our mortality rates for lung, colorectal, breast, and prostate cancer are consistent with those reported by other cancer agencies across Canada.[85,86]

Figure 42. Number of deaths and age-standardized mortality rate, all invasive cancers, 1996-2016.

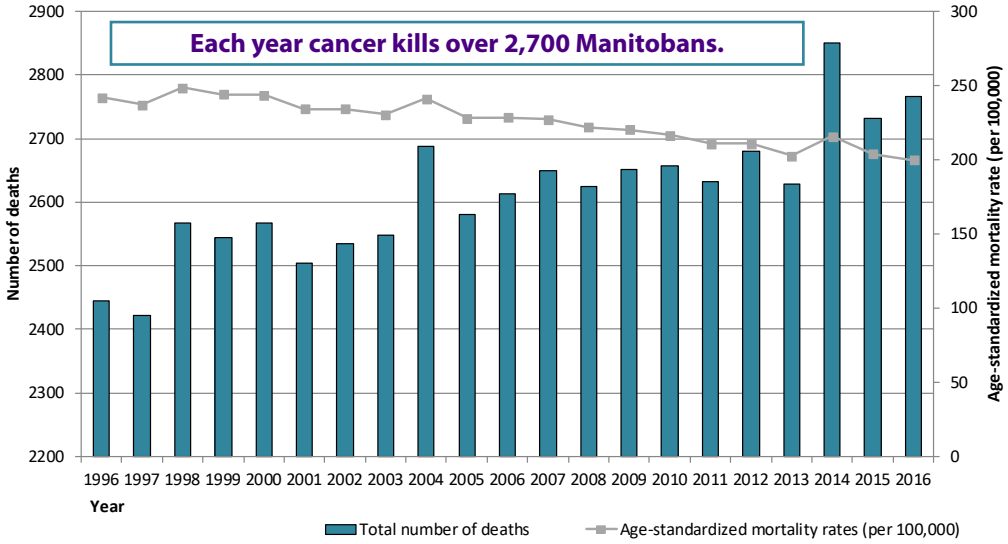
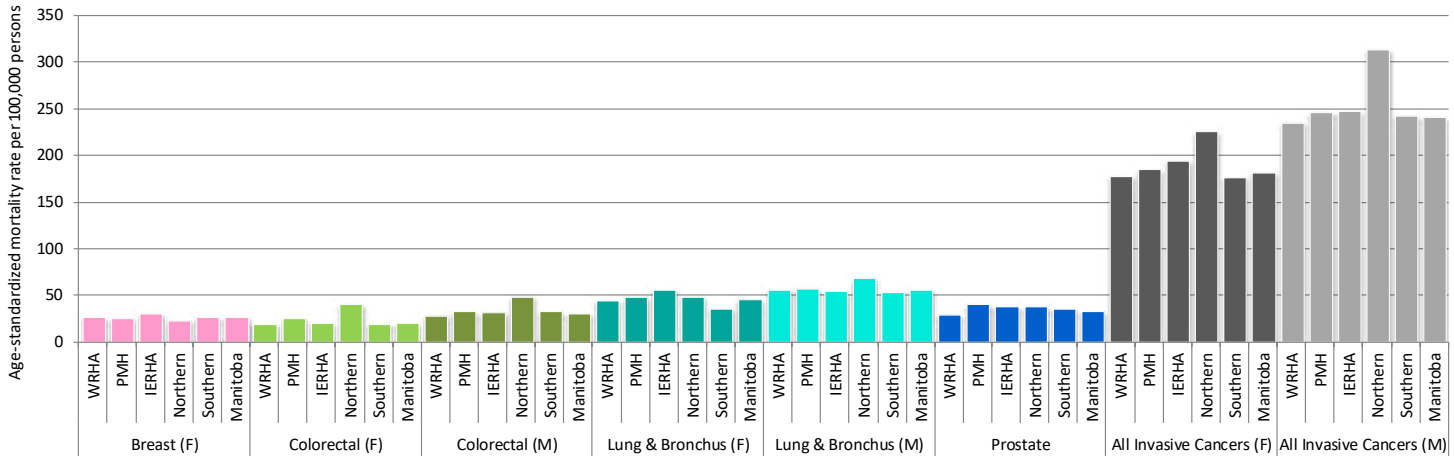
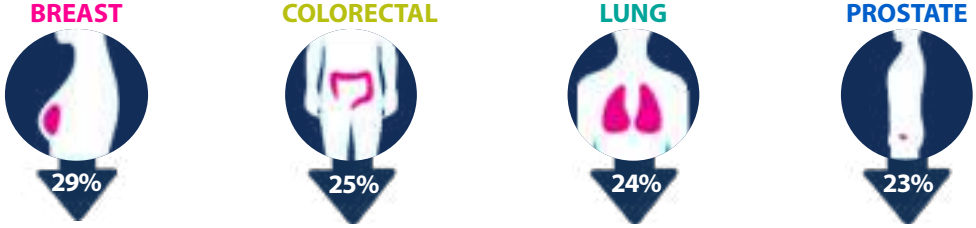


Figure 43. Age-standardized mortality rates by Regional Health Authority for breast (female only), colorectal, lung and bronchus, prostate, and all invasive cancers, 2014-2016.



Note: Winnipeg Regional Health Authority (WRHA); Prairie Mountain Health (PMH); Interlake-Eastern Regional Health Authority (IERHA); Northern Regional Health Authority (Northern); Southern Health - Santé Sud (Southern); Female (F); Male (M)

Since 1996, age-standardized mortality rates have decreased for the most common cancers.



Why are fewer people dying?

- Improved and earlier detection (screening)
- Specialist care
- Better and more effective treatments
- Risk factor reduction

See technical appendix for data sources and methodological details for all data shown on this page.

CANCER SURVIVAL

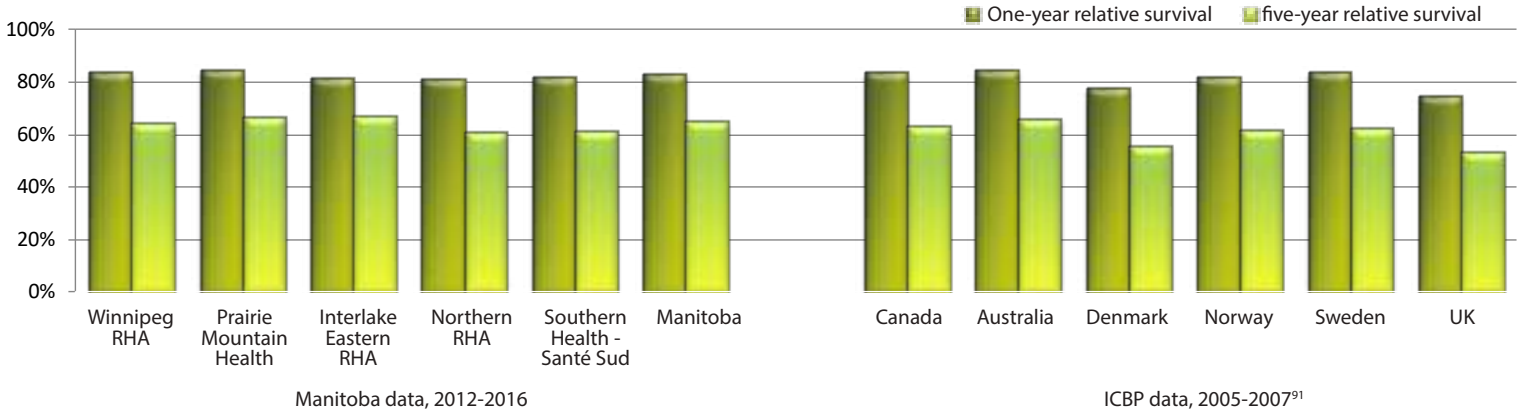
Survival reflects the number or proportion of people living with cancer who have survived for a specified period of time, usually one or five years.

Relative survival compares the survival experience of individuals with cancer to individuals without cancer (and of the same age) and shows the extent to which cancer shortens life.[87-90] This information is helpful in evaluating effectiveness of healthcare services and understanding how long a person might live after a cancer diagnosis. Figure 44 highlights relative survival rates for colorectal and lung cancer. It compares regional data across Manitoba (on the left) to data reported by the International Cancer Benchmarking Partnership on other high-income countries with universal healthcare and similar health outcomes to Canada (ICBP; on the right).[91] For colorectal cancer we see little variation across Manitoba health regions and other countries. Relative survival for lung cancer is more varied, but we see that Manitoba has higher one-year and five-year relative survival than the Canadian rate and other comparable countries.

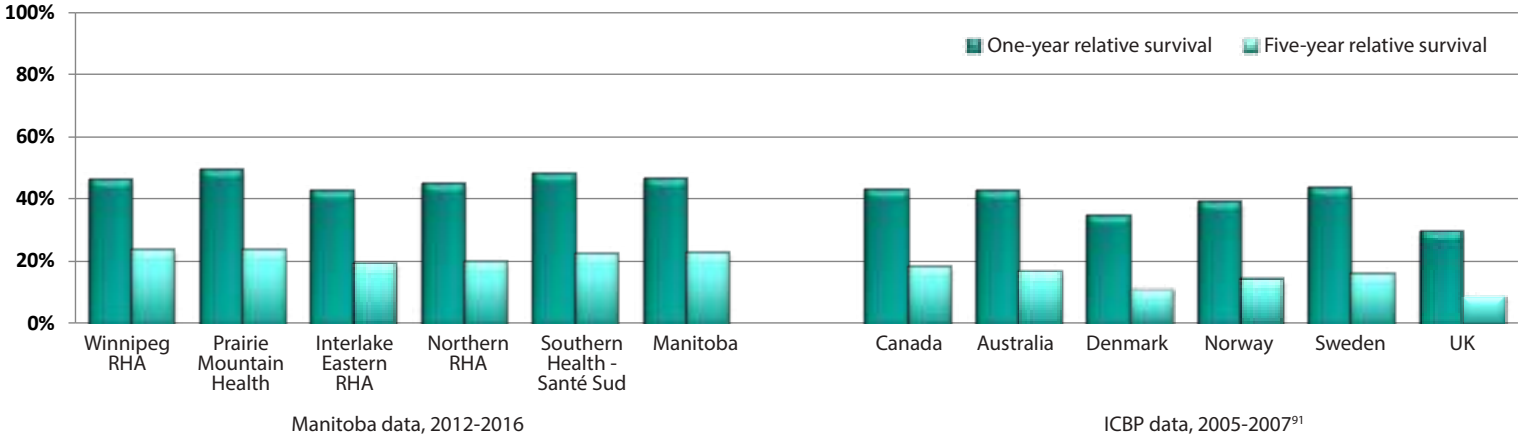
One-year relative survival for all invasive cancers = 77%
Five-year relative survival for all invasive cancer = 62%

Figure 44. Age-standardized one-year and five-year relative survival rates for colorectal and lung cancer with comparison of Manitoba data (2012-2016) and data from the International Cancer Benchmarking Partnership (ICBP).[91]

Colorectal



Lung and Bronchus



See technical appendix for data sources and methodological details.

WHAT DO WE KNOW?

Many complex factors are responsible for influencing cancer survival. These include tumour biology, patient factors (such as smoking), access and utilization of high quality screening, diagnostic, and treatment services, and statistical limitations such as variable data quality and masked effects due to the mix of cancers and disease stages.[2,3] Diagnosing cancer early is the best way to achieve higher survival rates, reduce treatment intensity, and improve quality of life while living with cancer. ***Our goal at CancerCare Manitoba is that no Manitobans' life is cut short by cancer and to help ensure that a life with cancer is a life well lived.*** By improving survival rates, we are doing just that.

PREVALENCE

Prevalence reflects the number of people who have experienced a cancer diagnosis in Manitoba within a specified period of time. It includes anyone with a new diagnosis, those receiving treatments, those receiving follow-up care, and survivors of the disease.

Cancer prevalence provides an understanding of the number or proportion of individuals who are alive on a specified index date and have previously been diagnosed with cancer. This measure combines incidence (new cases) with survival and reflects the full burden of disease to a healthcare system. Canadian data shows that both the rate of new cancers and survival from cancer is increasing.[92] Therefore understanding duration-specific prevalence estimates provide a proxy for specific care needs at each point of the cancer experience. This information is vital for strategic cancer care planning, service delivery, and workload management.[92-94] Demands on the cancer care system in Manitoba will increase substantially as more people receive a new cancer diagnosis each year. In addition many more Canadians will survive cancer but require continuing treatment. This means we will see increases to demands on cancer treatment and workload, but also increases to demands on resources and support for those living longer with the disease. CancerCare Manitoba is readying itself for this growing cancer surge in a sustainable way.

Figure 45. Number of prevalent cancer cases diagnosed between 2006-2015 by number of years since diagnosis (cases alive as January 1, 2016).

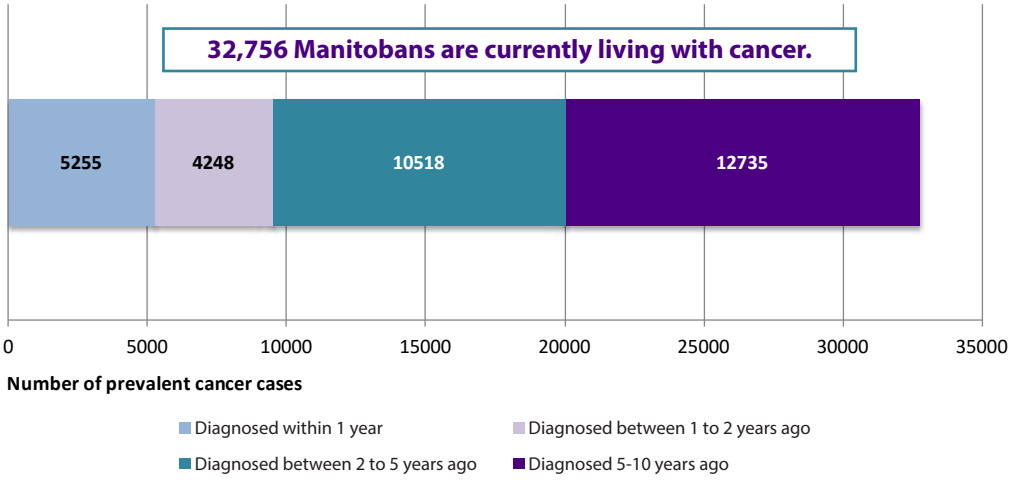


Table 16. Manitoba cancer prevalence proportion (per 100,000), by prevalence-duration and type of cancer (cases alive as of January 1, 2016)

	2-year	5-year	10-year
All cancers	716.6	1509.8	2470.1
Lung	66.4	108.7	148.8
Breast (female)	219.9	544.8	971.5
Colorectal	94.7	206.5	343.6
Colon	59.0	130.6	217.7
Rectum and rectosigmoid	37.1	79.6	131.6
Prostate	200.0	435.8	803.7
NHL	33.0	71.9	121.3
Corpus uteri	73.0	160.1	272.0
Melanoma of the skin	31.0	64.3	104.0
Kidney	28.4	62.8	99.8
Pancreas	9.4	14.3	16.0
Bladder	34.1	75.3	121.3
Thyroid	22.4	52.1	90.0
Stomach	10.5	17.0	22.3

Prevalence-duration is a proxy for the specific care needs at different points of the cancer continuum. By estimating the number of patients at each point of the continuum we can develop a cancer control strategy specific to our population. For example:

2-YEAR: This timeframe includes individuals who are likely receiving active treatment for their cancers such as chemotherapy, surgery, or radiation therapy.

5-YEAR: Extending to 5-years means we are also including individuals who may have completed treatment and are receiving regular follow-up for recurrence and adverse reactions.

10-YEAR: When we extend to 10-years we also include individuals who may be receiving care related to survivorship.

See technical appendix for data sources and methodological details for all data shown on this page.

HOW DO WE COMPARE?

Incidence and mortality data are very useful for cancer control planning purposes. These data highlight progress and concerns, can be compared across time, and can be compared across health systems to gain a strong understanding of the fitness of our current cancer care system. Below we compare Manitoba data to regional data (Table 17) and data from an international benchmarking study (Figure 46).

INTRA-PROVINCIAL COMPARISONS

Table 17. Comparison of age-standardized cancer incidence and mortality for provincial Regional Health Authorities to overall Manitoba rates, 2014-2016 per 100,000.

Cancer Sites	Winnipeg RHA		Prairie Mountain Health		Interlake - Eastern RHA		Southern Health - Santé Sud		Northern RHA		Manitoba	
	I	M	I	M	I	M	I	M	I	M	I	M
All invasive	470.0	200.6	482.3	211.0	511.8	218.4	470.9	205.9	525.6	263.5	478.4	206.5
Lung	67.6	49.5	69.4	51.3	68.5	55.3	62.1	43.4	81.1	58.0	67.7	50.0
Breast	126.5	26.3	97.8	25.0	128.2	30.4	108.9	26.9	107.6	•	119.8	26.6
Colorectal	57.0	23.1	72.1	29.1	65.9	25.4	64.5	25.7	85.9	44.6	61.9	25.0
Prostate	111.5	29.6	98.2	40.9	136.6	38.0	108.6	36.3	110.2	•	112.1	33.4

Incidence (I); Mortality (M). Significance is based on comparison to Manitoba as a whole; all rates are age-standardized. Age-standardized incidence rates by Regional Health Authority are reported for a three-year period (2014-2016) to stabilize estimates for smaller populations.

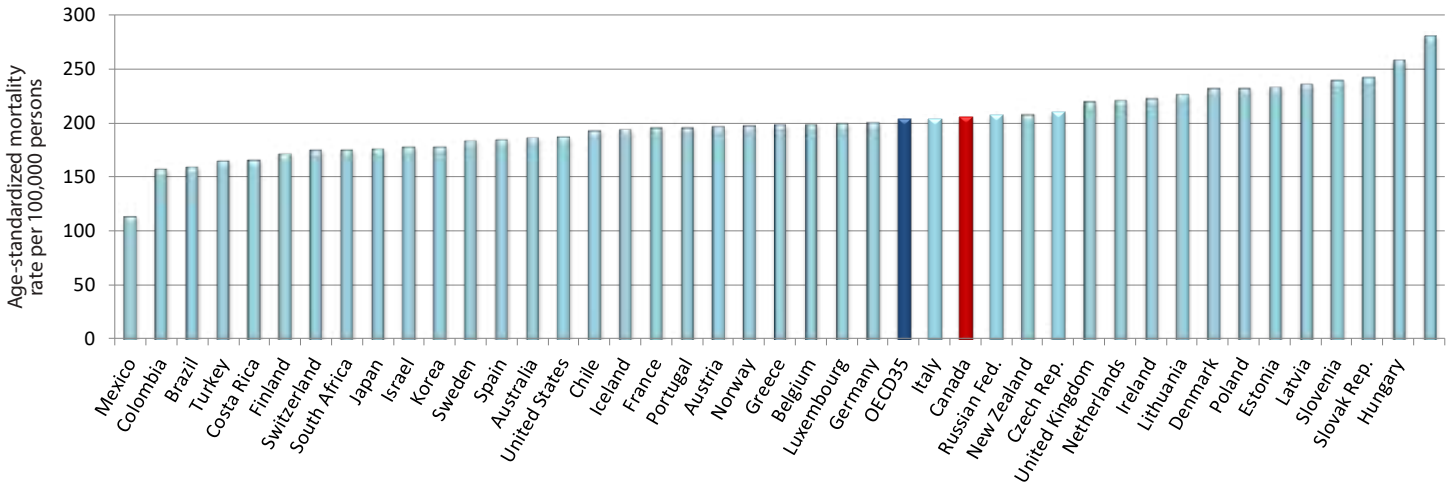
Significantly worse than Manitoba Significantly better than Manitoba • <20 observations No significant difference

See technical appendix for data sources and methodological details.

INTERNATIONAL COMPARISONS

Every few years, the Organisation for Economic Cooperation and Development (OECD) publishes a report known as "Health at a Glance" which presents up-to-date cross-country comparisons of the health status of populations and health system performance in OECD and partner countries.[95] The report includes data on cancer mortality and consistently demonstrates cancer as a major cause of mortality across OECD member countries.[95] Figure 46 shows the age-standardized mortality rates for 34 OECD countries.

Figure 46. Age-standardized cancer mortality rates across 34 OECD countries (most recent year available, 2011-2015).[95]



See technical appendix for data sources and methodological details.

SURVIVORSHIP

"The day I was diagnosed with cervical cancer changed my life forever...I remember telling my family that I would never let this disease consume my life. But treatment was a full time job that consumed me, healing and recovery was a full time job that consumed me, it started to define me. And, although I am a 2.5 year cancer survivor, it's a full time job not allowing the fear of this terrible disease consume me. The fear will never go away, but not allowing it to define me helps me live my life to the fullest!"
- CCMB patient.

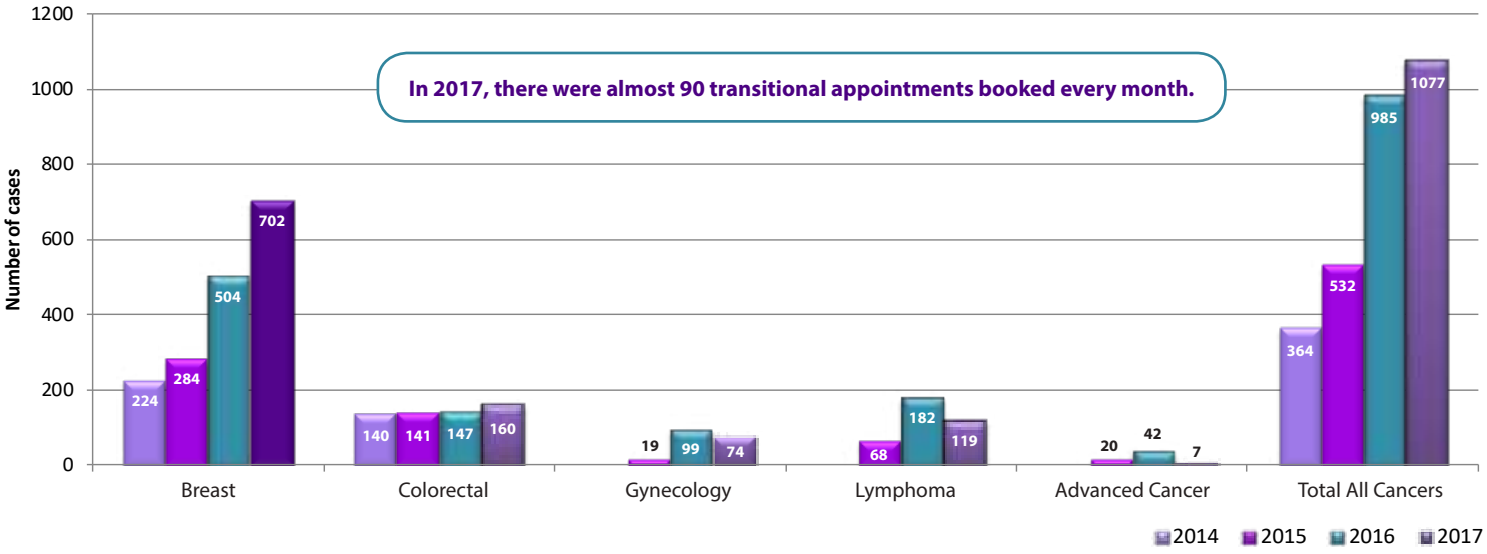
Patients often experience mixed emotions at the end of their cancer treatments. There is a sense of relief, yet also worry about whether there will be a recurrence and concern about the impact of the experience on their everyday lives. CancerCare Manitoba has supports in place for both the physical and psychological care patients may need.

SURVIVORSHIP

Worry accompanies cancer, even when the cancer is gone.
-CCMB Patient.

Family physicians and nurse practitioners play a key role in caring for patients during and after their cancer treatment. CCMB has developed a Moving Forward After Cancer Program, which helps patients and healthcare providers to transition towards follow-up care at the end of curative systemic or radiation treatments using recommended follow-up guidelines, standardized care plans and transition appointments. In addition, patients receive a Moving Forward after Treatment booklet with specific information about treatments they received for their cancer. Although we often consider transitions for patients as moving out of the cancer care system to their family doctors after cancer treatment, CCMB care providers are keen to see the program expand to provide useful information for patients at any point in their experience with cancer – i.e., at diagnosis, treatment changes, care for advanced illness, etc. Transitioning to continuing, follow-up, or palliative care are crucial points in the cancer journey. CCMB's Transition of Care program is working to ensure a consistent approach is used provincially for all patients. The Moving Forward after Cancer project and the Changing Focus: Living with Advanced Cancer project are just two initiatives that have been implemented to support this consistent approach to care.

Figure 47. Number of transitional appointments booked by cancer site cases, 2014-2017.



See technical appendix for data sources and methodological details.

Nearly 1 out of every 40 Manitobans have survived a cancer they were diagnosed with in the past 10 years. This number is expected to continue growing.

As of January 1, 2016 32,756 individuals were still alive after a cancer diagnosis within the last 10 years.

Many cancer survivors have had a previous diagnosis of prostate or breast cancer.

PALLIATIVE AND ADVANCED DISEASE

"The phrase, "…to help ensure that a life with cancer is a life well lived" reflects my personal cancer philosophy. I don't use negative words like "battle, fight, beat, mad, hate." I give cancer very little thought and have lived with my breast cancer for twelve years, the past six years with metastasis. Cancer did not portent an ending. It was a beginning for me to start writing children's books and use every opportunity to encourage people not to let fear or time hold them back from trying new things."
- CCMB patient.

Palliative care provides support for patients and families facing life-limiting illnesses, such as cancer. Palliative care helps patients to achieve the best possible quality of life right up until the end of life. Although it is sometimes considered end-of-life care, with a main focus on comfort, it is increasingly recognized that a palliative approach is beneficial early on in cancer care.

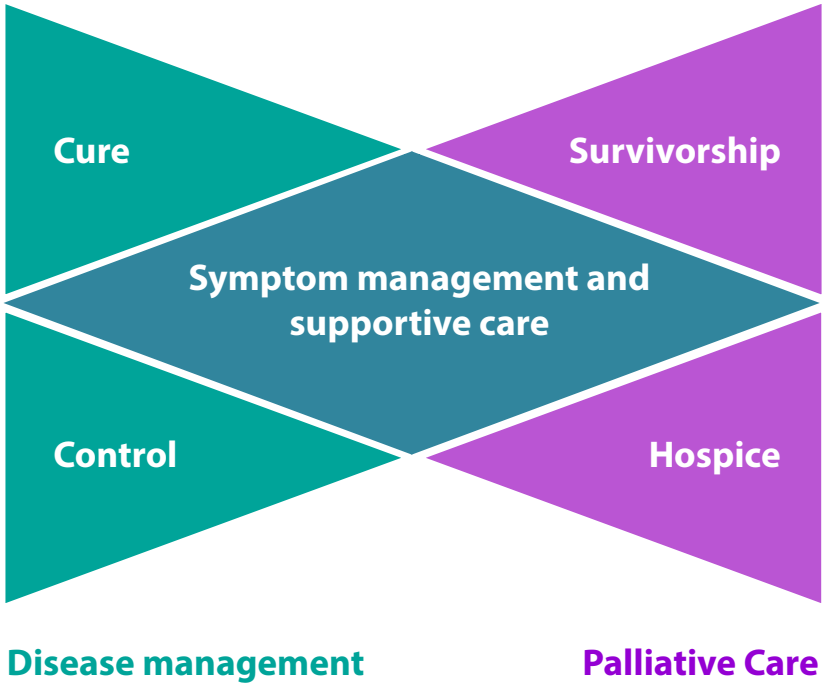
PALLIATIVE AND ADVANCED DISEASE

Palliative care is provided to patients facing life-limiting illnesses, such as cancer, to help them maintain the best possible quality of life until the end of life. In essence the palliative care approach aims to provide care that promotes dignity and comfort, rather than cure.[96,97] Although palliative care is often referred to as end of life care it has become increasingly recognized as an approach to benefit serious and chronic disease earlier.[96-98] Evidence shows early palliative care amongst patients with metastatic non-small-cell lung cancer results in longer survival and less aggressive end of life treatment, as well as improvements to quality of life and mood.[99] The Canadian Institute for Health Information (CIHI) states that earlier integration of palliative care would be beneficial to both patients and the health care system.[98]

Figure 48. Model of integrated palliative care highlighting how palliative care can be integrated across the patient experience, adapted from the Canadian Virtual Hospice.[98]

Estimates suggest that between 62% and 89% of those who die could benefit from palliative care - including nearly everyone who does not die unexpectedly.

- CIHI Report, 2018.[100-104]



CANCERCARE MANITOBA

ADVANCE CARE PLANNING OR GOALS OF CARE

Using our patient-reported outcomes tool, COMPASS, we ask patients three questions about advance care planning - whether they needed any information on the topic, whether they wanted to discuss it at their appointment that day, and whether there was a recent change to their advance care plan since their last visit. ***Between July 2017 and June 2018 nearly 4,000 questionnaires identified a 'Yes' to at least one of these questions.*** This equates to about 8.5% of all questionnaires completed.

PSYCHOSOCIAL SUPPORT

Palliative care does not necessarily end after an individual dies. Loved ones may need support while they grieve. ***In 2017, there were 2,962 psychosocial support visits with loved ones and caregivers to help them cope with grieving and bereavement.*** This service is provided through CancerCare Manitoba's Patient and Family Support Services.

***NEW* RAPID ACCESS TO RADIATION THERAPY**

A Rapid Access to Radiation Therapy pilot was launched in 2018 to provide opportunity for same day radiation therapy to improve pain and symptom management and quality of life for eligible patients with terminal cancer or who are receiving palliative care.

GENERAL HEALTHCARE SYSTEM

HOSPITAL ADMISSIONS WITHIN LAST 28 DAYS

Acute-care hospital visits may be necessary for complex medical needs, however longer or more frequent hospital stays may indicate a service gap. ***In Manitoba, 18% of patients had two or more admissions to acute-care hospitals within the last 28 days of life (2014-15 data)***. Nationally this value is higher – at 23%.[21]

PLACE OF DEATH

We know many patients with terminal cancer would prefer to die at home or in a supportive healthcare setting such as a hospice, palliative care unit, or personal care home.[99,105] In a recent report, Canadian Partnership Against Cancer (CPAC) found that ***most cancer patients in Canada die in a hospital (66.8% in 2012) rather than a private home.***[21] A recent CIHI report showed the proportion of deaths in hospital has been decreasing since 2007.[98] In Manitoba it is difficult to clearly report the proportion of cancer patients who died in a hospital versus at home as vital statistics data identify any death in a hospice, palliative care unit, or personal care home as a "hospital death" despite the inherent difference between dying in hospital after an unexpected admission and dying in another patient preferred supportive setting.

MAID

In June 2016, the federal government passed legislation legalizing Medical Assistance in Dying (MAID) in Canada for competent adults. In the first two years (June 2016-2018) the Manitoba MAID team has had 625 contacts from patients resulting in 146 assisted deaths. ***71% of the assisted deaths were for individuals with a terminal cancer diagnosis.***

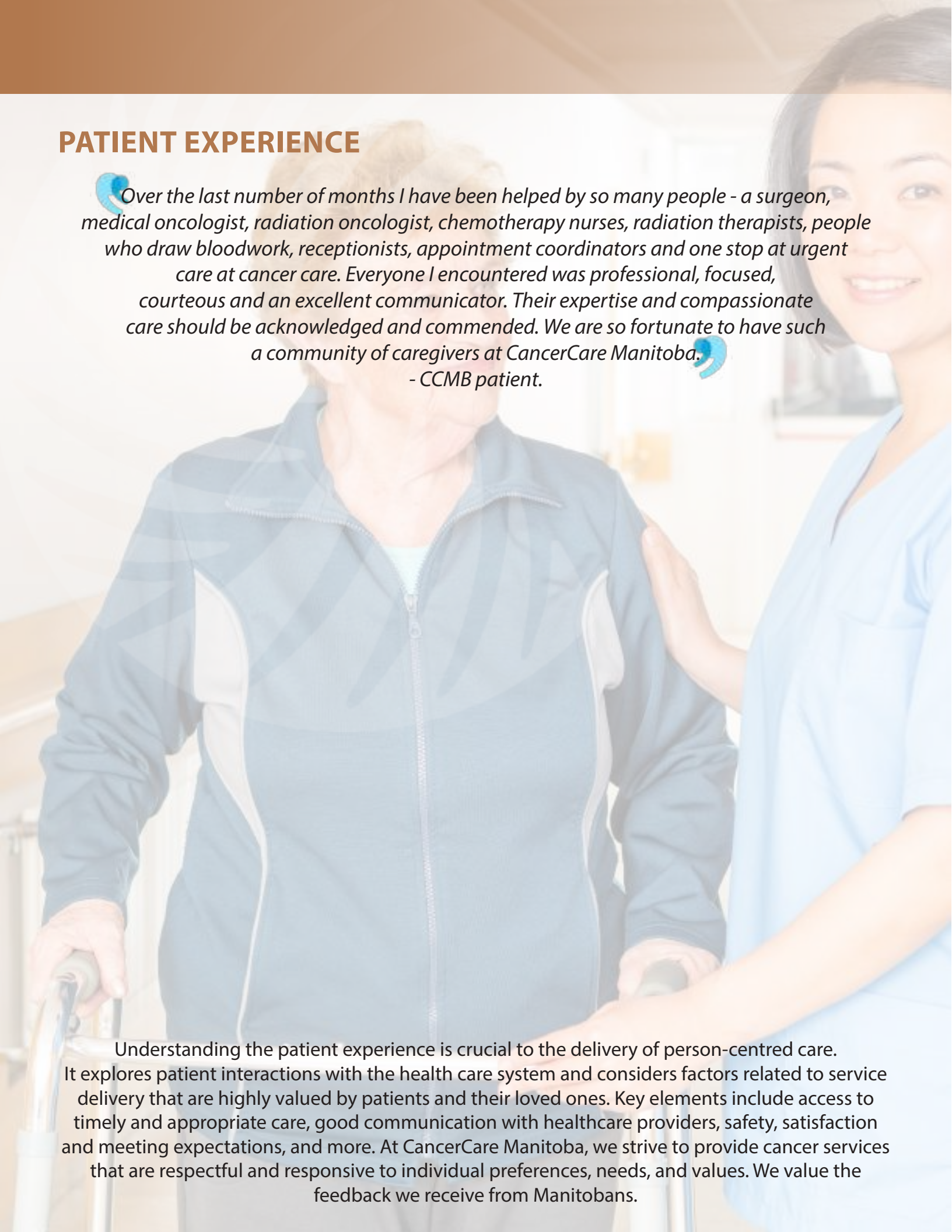
WRHA PALLIATIVE CARE PROGRAM

The Winnipeg Regional Health Authority (WRHA) Palliative Care Program focuses on managing physical symptoms as well as providing social, emotional, and spiritual support for individuals and their families throughout the course of the illness, including bereavement support. ***Each year approximately 1,200 individuals are accepted into the WRHA Palliative Care Program. Approximately 80% of these individuals will have a cancer diagnosis.*** There are palliative care programs in WRHA and Southern Health - Santé Sud, but not other regional health authorities. This means individuals do not have the same opportunity to access palliative care in rural and remote areas of Manitoba.

As the burden of cancer increases so too does the demand on high-quality palliative care services.

PATIENT EXPERIENCE

Over the last number of months I have been helped by so many people - a surgeon, medical oncologist, radiation oncologist, chemotherapy nurses, radiation therapists, people who draw bloodwork, receptionists, appointment coordinators and one stop at urgent care at cancer care. Everyone I encountered was professional, focused, courteous and an excellent communicator. Their expertise and compassionate care should be acknowledged and commended. We are so fortunate to have such a community of caregivers at CancerCare Manitoba.
- CCMB patient.

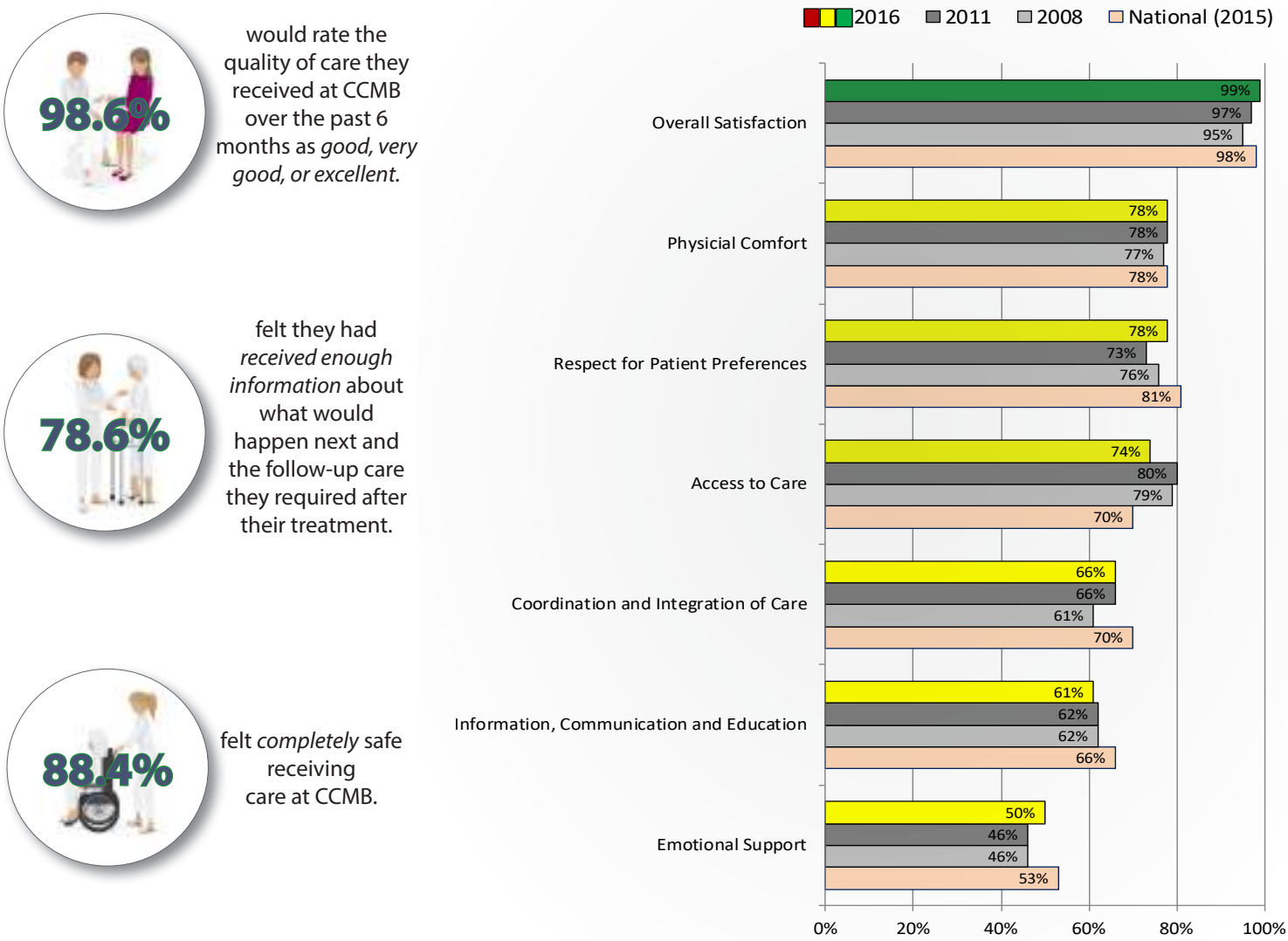


Understanding the patient experience is crucial to the delivery of person-centred care. It explores patient interactions with the health care system and considers factors related to service delivery that are highly valued by patients and their loved ones. Key elements include access to timely and appropriate care, good communication with healthcare providers, safety, satisfaction and meeting expectations, and more. At CancerCare Manitoba, we strive to provide cancer services that are respectful and responsive to individual preferences, needs, and values. We value the feedback we receive from Manitobans.

PATIENT EXPERIENCE

In 2016, CancerCare Manitoba (CCMB) conducted the Ambulatory Oncology Patient Satisfaction Survey (AOPSS) to evaluate patient satisfaction for care received at CCMB for a six-month period between July and December 2015. Similar to other provinces, CCMB has used AOPSS to evaluate patient satisfaction on an ongoing two-to four-year cycle since 2004. A sample of Manitoban patients were invited to share their experiences by completing the national standardized and validated AOPSS questionnaire. A total of 887 patients from across all cancer care facilities in Manitoba completed questionnaires with a ***response rate of over 53 percent.*** AOPSS measures overall satisfaction and satisfaction along six dimensions of person-centred care.

Figure 49. Trends in overall satisfaction and satisfaction across six dimensions of person-centred care for CancerCare Manitoba's 2008, 2011, and 2016 Ambulatory Oncology Patient Satisfaction Surveys compared to the National experience (2015).

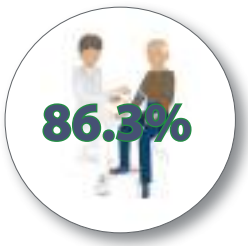


Notes: *Colour of 2016 bar identifies where trends over time are good (green),neutral (yellow), or need improvement (red).*
See technical appendix for data sources and methodological details.

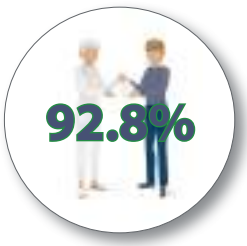
98.6% would rate the quality of care they received at CCMB over the past 6 months as *good, very good, or excellent.*

78.6% felt they had *received enough information* about what would happen next and the follow-up care they required after their treatment.

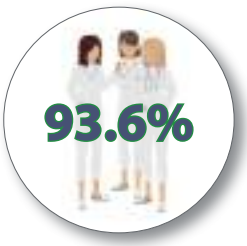
88.4% felt *completely* safe receiving care at CCMB.



86.3% felt that care providers at CCMB did everything they could to treat their cancer.



92.8% felt they were treated with dignity and respect.



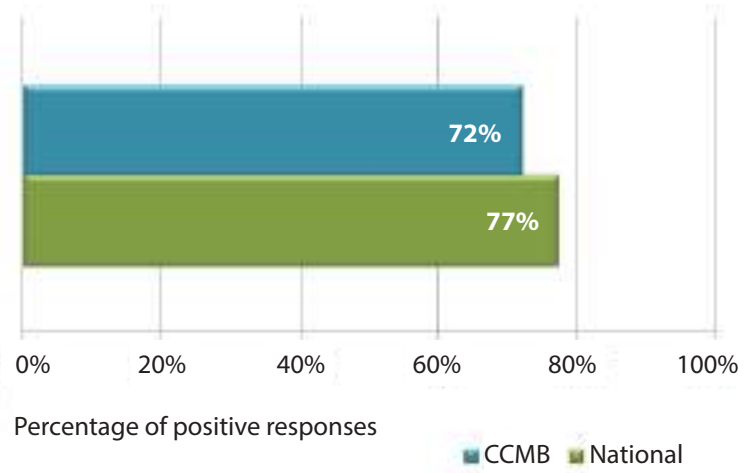
93.6% felt that their health care providers were *usually* or *always* aware of their test results.

PATIENT AND CAREGIVER INVOLVEMENT

INVOLVING PATIENTS IN THEIR CANCER CARE

At CancerCare Manitoba (CCMB) patients and their families are at the very heart of our work. We strive to provide patient and family-centered cancer care, using an approach to planning and delivery that recognizes and respects patients and families as partners in the process. In the 2016 Ambulatory Oncology Patient Satisfaction Survey (AOPSS) we asked patients whether they were involved in decisions about their care as much as they wanted. ***72% of respondents provided a positive response. This is slightly lower than the national benchmark of 77%.***

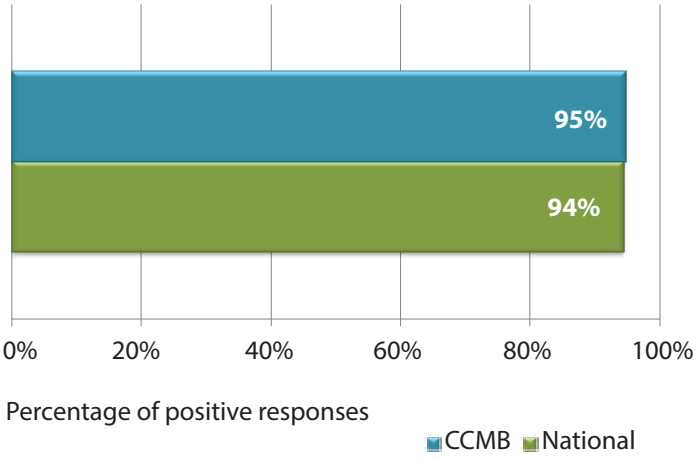
Figure 50. Percentage of positive responses in 2016 AOPSS to the question: "Do you think you were involved in decisions about your care as much as you wanted?"



CAREGIVER INVOLVEMENT

At CCMB we consider someone a "caregiver" if they are helping someone they love during cancer care. There are different types of caregivers. Some are family members. Others are friends. Every situation is different. There are also different ways to provide care. Caregiving can mean helping with day-to-day activities such as attending or driving to doctor visits, or preparing food. But it can also happen long-distance, when you are coordinating care and services by phone or email. Caregiving can also mean giving emotional and spiritual support. It may mean helping your loved one cope and work through the many feelings that come up at this time. Talking, listening, and just being there are some of the most important things you can do. In the 2016 AOPSS we asked patients to identify how much opportunity their care providers gave to their caregivers to be involved in their care and treatment.
95% of respondents told us that their care providers involved their caregivers the "right amount" of time - not too little and not too much. Just right.

Figure 51. Percentage of 2016 AOPSS respondents who responded "*Right Amount*" to the question: "How much opportunity did your care providers give your family or friends to be involved in your care and treatment?"



See technical appendix for data sources and methodological details for all data shown on this page.

BUILDING AN EQUITABLE CANCER CARE SYSTEM

The provision of equitable service delivery and cancer-related care to all citizens of Manitoba is important to everyone at CancerCare Manitoba (CCMB). Equity has always been central to the fabric of the organization but more recently we have focused on working to further enhance and improve service delivery. In fact, the need to work towards improved care for underserved populations was identified as one of six strategic directions for CCMB in the Manitoba Cancer Plan 2016-2021. This strategic direction targets the provision of new and enhanced access to services for First Nations, Métis, and Inuit and new attention to newcomers, the elderly, and residents of geographically-isolated areas, as well as the development of a new multidisciplinary care program for adolescents and young adults. We value the experience of patients and their loved ones. Anyone who finds themselves experiencing barriers to care can connect with us to find out more about services we provide to all underserved populations (e.g., gender minorities, people living with a disability, people living in poverty, etc.). We continue to apply a collaborative province-wide approach to address the needs of underserved populations to ensure equity in service delivery, and ultimately health outcomes.

TARGETING BARRIERS TO SCREENING IN FIRST NATIONS, MÉTIS, AND INUIT COMMUNITIES:

The population of Manitoba was 1.28 million at the time of the 2016 census.[106] ***18% of all Manitobans identified as First Nations, Métis, or Inuit.***[106] In fact, Winnipeg has the largest population of Indigenous individuals compared to all other urban centres in Canada.[1] It is well documented that Indigenous populations in Manitoba experience inequities based on cultural and language differences, geographic and social remoteness, and limited access to basic healthcare services. CCMB is dedicated to improving cancer care for Indigenous peoples of Manitoba. We recognize and respect that our main sites are located on Treaty 1 land, the original territories of the Anishinaabeg, Cree, Oji-Cree, Dakota, and Dene peoples, and on the homeland of the Métis Nation. We respect the Treaties made on this land and acknowledge the harms and mistakes of the past. We are committed to building on existing collaborative partnerships with Indigenous communities to reduce inequities in care and access to cancer services for Indigenous people of Manitoba.

Research has highlighted inequities in cancer care provided to First Nations, Métis, and Inuit people across Manitoba and the rest of Canada. Local research has identified ***First Nations women were more likely than all other Manitoban women to be diagnosed with breast cancer at a later stage.***[107] Another study showed that ***First Nations women were more likely to be diagnosed with an invasive cervical cancer than all other Manitoban women.***[108] This research highlights a well-known gap in the provision of cancer screening services – that Indigenous populations have lower uptake to cancer screening consequently leading to higher rates of cancer and worse health outcomes. For example, outcomes due to late-stage breast cancer diagnoses are often worse than when a cancer is found early with routine breast cancer screening mammography. In addition, cervical cancer can be prevented by finding early lesions caused by the human papillomavirus (HPV) through routine Pap smears and HPV testing. There are many collaborative solutions to improve cancer screening participation and inform public health education strategies that reduce barriers to screening and promote healthy lifestyles in Indigenous communities.[107,108] CCMB's Screening Program works hard to reduce these barriers and find new ways to deliver cancer screening services to all Manitobans. This includes partnering with clinics, nursing stations and health centres around the province to offer enhanced Pap test services throughout the year and the coordination of BreastCheck mobile mammogram clinics to provide better access to breast cancer screening in rural areas.

As part of the CCMB's Community Oncology Program, the Underserved Populations Program works with underserved communities and our partners in care to build relationships, trust, and sustainable solutions to reduce the burden of cancer. We also work directly with clients who are experiencing barriers in access to health services due to disparities in social and economic conditions. Our goal is to engage with patients, survivors, families, and communities to help improve the cancer journey for all Manitobans living with cancer. One example is the Education and Liaison Nurse who provides staff and community education on health equity principles, navigation of healthcare gaps and barriers, cancer awareness, prevention, screening, and other cancer-related services. CCMB also collaborates with various organizations and stakeholders to improve system-wide equity in care and provide navigation for clients experiencing significant barriers leading to an inability or difficulty in accessing the system.

We are working with First Nations, Métis, and Inuit communities to ensure all Manitobans have equitable access to cancer care.

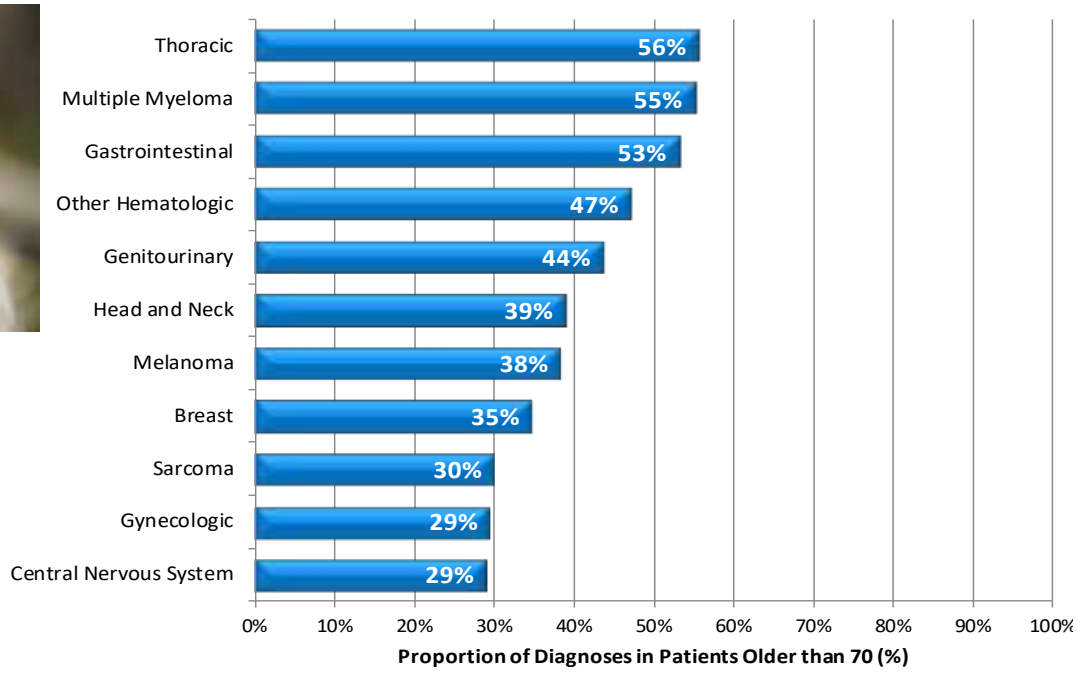
IMPROVING ACCESS AND SUPPORT TO OLDER ADULTS WITH CANCER:

The 2016 census shows that nearly 11% of Manitobans were over the age of 70 (n=134,065). Females made up the largest proportion of this age group (57%). Since 2006, the number of individuals over the age of 65 has increased by 23%.[106]

Annual cancer cases are expected to rise consistently over the next few decades. This is largely an effect of our aging population. With the population increasingly aging, the cancer burden amongst older adults is growing rapidly. ***45% of Manitobans diagnosed with cancer are over the age of 70.*** Over 50% of new gastrointestinal, thoracic and multiple myeloma cancer cases are diagnosed in individuals over the age of 70.

Older patients with cancer have unique needs that are not present in younger patients, many of which can be attributed to typical physiologic changes related to aging, as well as the differences with psychosocial care and support. With this in mind, oncology teams need to incorporate geriatric assessments and principles into daily practice in all oncology fields. Establishing a community of practice amongst all Manitoba clinicians who treat older patients with cancer will increasingly become an important component of care. The Underserved Populations Program within the Community Oncology Program at CancerCare Manitoba is working to establish a new initiative dedicated to improving access to care and related support for older patients living with cancer. In addition to improving our understanding of the needs of this population, the team has organized two educational programs on geriatric oncology principles (Geriatric Oncology Day) in spring 2018 and 2019, and look forward to planning many more events. A spotlight report is planned for this very important population.

Figure 52. Proportion of new cancer diagnoses in patients older than 70 years of age, 2009-2014.



See technical appendix for data sources and methodological details.

ENGAGING WITH NEWCOMERS TO UNDERSTAND CANCER-RELATED NEEDS OF NEW CANADIANS:

At the time of the 2016 Census, 249,625 Manitobans identified being born outside Canada. ***Over 63,000 individuals recently immigrated to Manitoba between 2011 and 2016.***[106] During this time, the top 5 countries of origin included Philippines, India, China, Nigeria, and Pakistan.[106] CCMB works with newcomers to ensure they are aware of how to access screening, cancer information, and cancer care support. In fact, we have a team available to help newcomers navigate the cancer care and healthcare system in an effort to remove barriers to care at any point of the cancer experience. In addition, we have formed a Newcomer Advisory Committee to help us to better address the needs of these populations.

SUPPORTING MANITOBANS WITH CANCER THROUGH THE LANGUAGE ACCESS PROGRAM

The provision of language services is an important quality service provided in collaboration with the Winnipeg Regional Health Authority (WRHA) Language Access program and WRHA Indigenous Health. ***Over a one-year period there were 1,639 interpreter requests through CCMB across 42 languages.*** The most common language requests were:

1. Cantonese (13%)
2. Mandarin (12%)
3. Punjabi (9%)
4. Russian (7%)
5. Tagalog (7%)
6. Vietnamese (7%)
7. Arabic (5%)
8. Cree (5%)
9. Polish (5%)
10. Spanish (4%)
11. Korean (3%)
12. High German (3%)
13. French (3%)
14. Portuguese (3%)
15. Tigrinya (3%)
16. Other (11%)

We continue to work together to improve patient and healthcare provider awareness of available language services.

IMPACTS OF FINANCIAL STRESS ASSOCIATED WITH CANCER CARE:

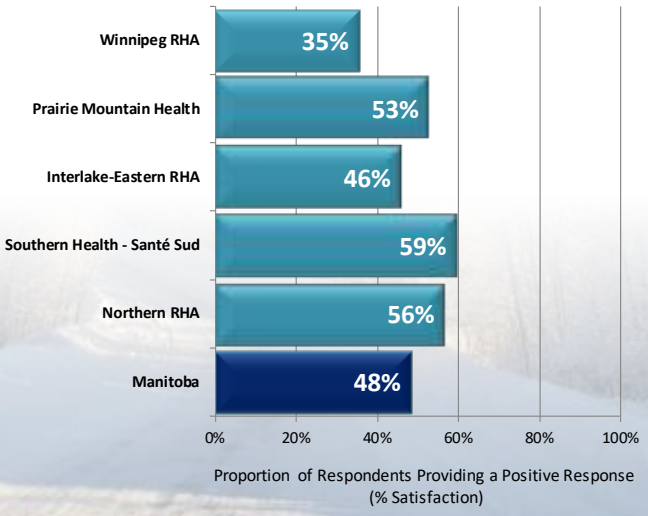
Many individuals experience financial stress after a cancer diagnosis. The 2016 Ambulatory Oncology Patient Satisfaction Survey (AOPSS) revealed that ***nearly 34% of respondents never or only sometimes got the help they needed to figure out how to pay for any extra costs for their cancer care.*** This type of response has an impact on the patient experience. In fact, overall satisfaction scores were lower for individuals who provided a negative response to this AOPSS question.

IMPACTS OF TRAVEL ON PATIENTS FROM REMOTE OR RURAL MANITOBA:

Area of residence can be a significant barrier for people living in rural areas of Manitoba. We want to ensure that patients across Manitoba receive equitable access to care by working to minimize barriers rural patients face throughout their experience with cancer. The Community Oncology Program is a provincial program of CancerCare Manitoba (CCMB) that works to bridge partnerships between primary care, specialists, community, and regional partners in an effort to provide Manitobans with quality cancer care closer to home. Through this strong partnership, we are able to better meet the needs of Manitobans living with cancer.

The 2016 AOPSS highlighted there are regional differences in satisfaction to the question asking whether they felt their care providers considered their travel concerns during treatment planning. Interestingly the Winnipeg Regional Health Authority (RHA) had the lowest reported satisfaction for this question (35%). Respondents from the Interlake-Eastern RHA (46%) were least satisfied of regions outside of Winnipeg.

Figure 53. Proportion of respondents providing a positive response to 2016 Ambulatory Oncology Patient Satisfaction (AOPSS) question on whether they felt their care providers considered their travel concerns during treatment planning.



See technical appendix for data sources and methodological details.

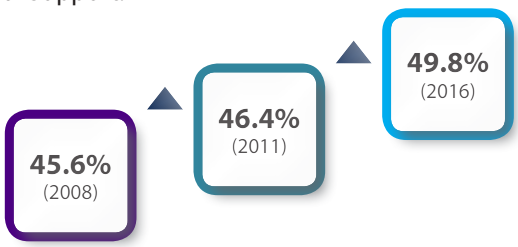
EMOTIONAL HEALTH

Cancer is a human experience. Living with cancer is about dealing with the unknown. It is about trying to grasp the news and starting to understand its life-changing effect. It is about wondering if the treatment is working and whether the side effects will go away soon. It is about questioning whether anything else can be done to overcome this illness. And it is about figuring out what life will be like when treatment is over, while having hope for the future. Sometimes, it is about learning to let go of the possibility of cure.

- Canadian Partnership Against Cancer (CPAC), from *Living with Cancer: A Report on the Patient Experience* (2018)[109]

Scores for the dimension of emotional support in the Ambulatory Oncology Patient Satisfaction Survey (AOPSS) have been low across Canadian jurisdictions, Manitoban regions, and across time (2008, 2011, 2016). We have seen a slow but consistent increase in Manitoba since 2008. However; we remain slightly below the most current national rate of 50%. This highlights an opportunity to improve the patient experience in Manitoba.

Figure 54. Satisfaction scores over time for AOPSS Dimension of Emotional Support.



See technical appendix for data sources and methodological details.

AREAS OF CONCERN WITHIN THE DIMENSION OF EMOTIONAL HEALTH IN THE 2016 AMBULATORY ONCOLOGY PATIENT SATISFACTION SURVEY (AOPSS)

51% of Manitoban respondents who had anxieties and fears when they were first told about their illness did NOT receive a referral to a care provider to help them with these anxieties and fears. (National Experience = 51%)

TYPE OF INFORMATION NEEDED BUT NOT RECEIVED:

- **67%** did not receive all the information they needed on changes to their relationship with their spouse/partner. (National = 67%)
- **61%** did not receive all the information they needed around changes to their emotions. (National = 57%)
- **59%** did not receive all the information they needed on changes to their sexual activity. (National 55%)
- **56%** did not receive all the information they needed on changes in their work or usual activities. (National = 51%)
- **40%** did not receive all the information they needed on changes to their physical appearance. (National = 37%)
- **46%** did not receive all the information they needed about their nutritional needs. (National = 43%)

WHERE TO FIND MORE INFORMATION:

CancerCare Manitoba
Patient and Family Support Services

Skilled professionals can help and support patients and their families. The following services are available at CCMB:

- **Counselling for patients and their families (Psychosocial Oncology)**
- **Support groups and programs**
- **Sexuality counselling**
- **Patient and Family Resource Centre (information and education sessions)**
- **Breast and Gyne Cancer Centre of Hope (information, education, and support programs)**
- **Guardian Angel Caring Room (wigs and headwear, Look Good Feel Good programs)**
- **Nutrition services**

APPENDICES

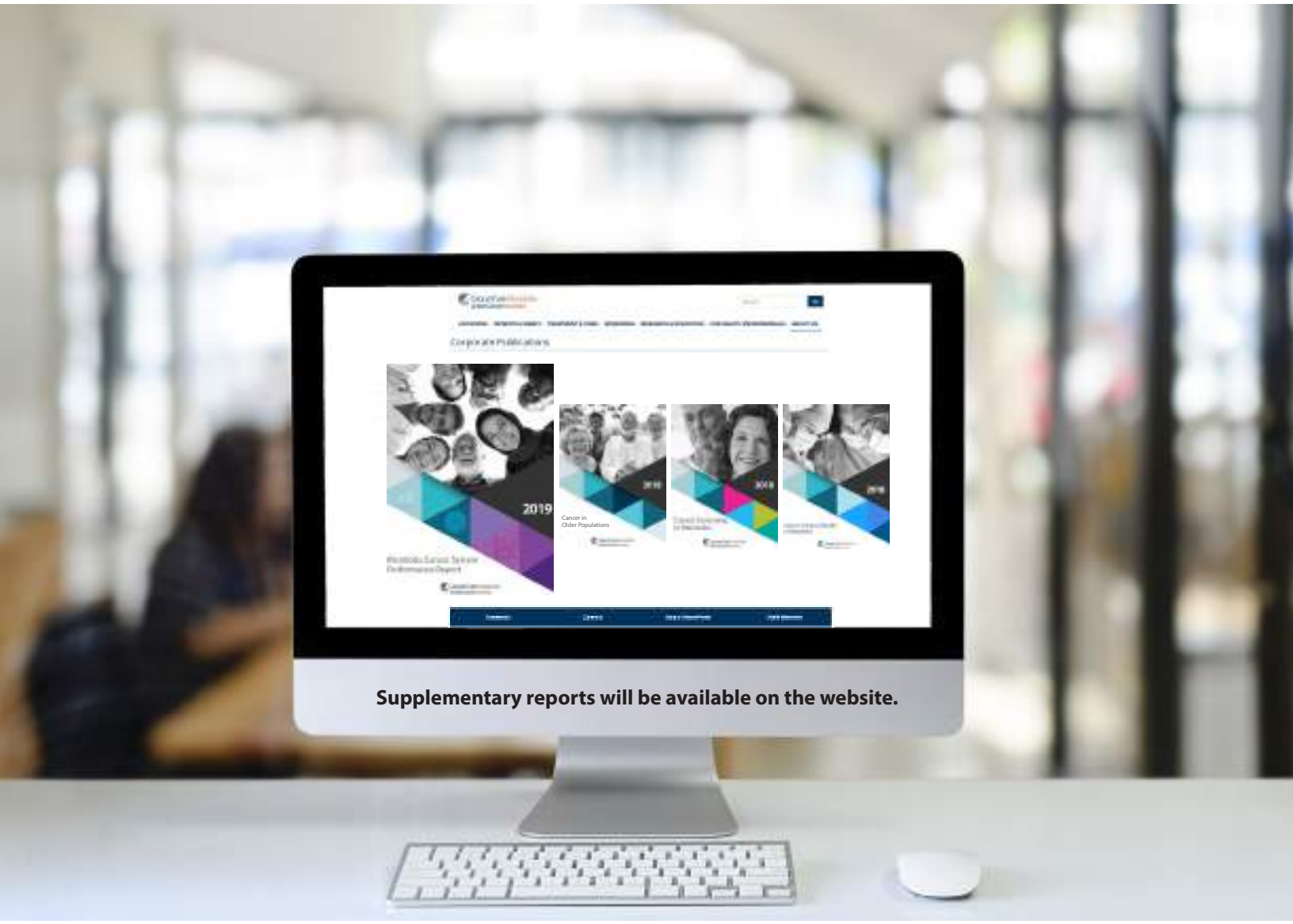
"I remember getting my diagnosis over the phone. It was my entry into "Cancerland". I felt I had entered an emotional, medical and technological space. I had to learn to accept strong emotions and process all the new and bewildering language of medicine. I had to learn to advocate for myself along with my partner's help. The crucial thing for me was to develop compassion for myself and for others around me. The need to cultivate compassion has become a transformative and a guiding value as I get on with the rest of my life. I am grateful to those who work in the medical profession who helped in giving me more life, a life transfigured by this experience."
- CCMB patient.

ORDER OF APPENDICES:

MANITOBA CANCER SYSTEM PERFORMANCE SERIES

Find us on the Web

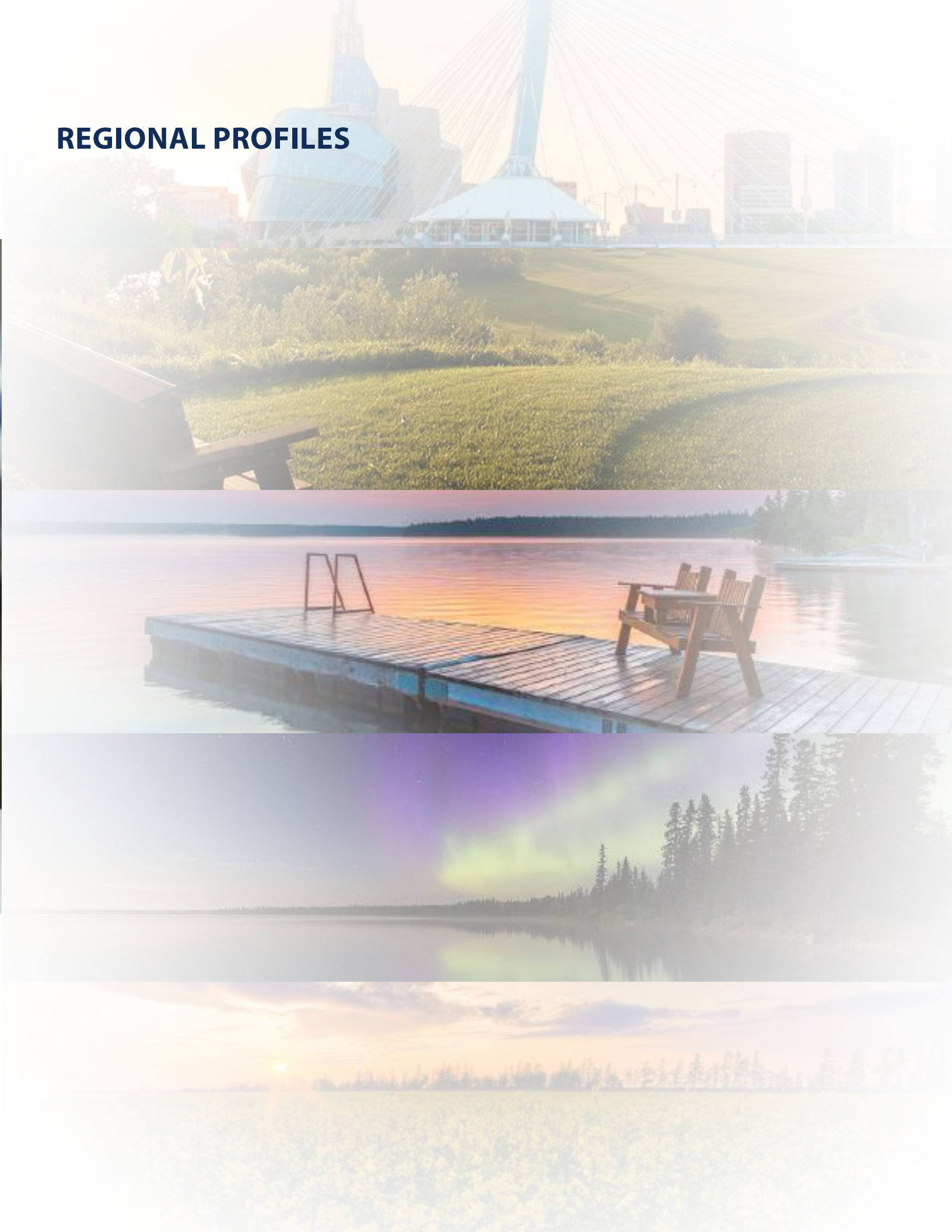
https://www.cancercare.mb.ca/About-Us/corporate-publications



Supplementary reports will be available on the website.

The **Manitoba Cancer System Performance Report** is the first report in a series of upcoming reports that highlight a wide range of metrics measured at CancerCare Manitoba. This System Performance series includes a soon-to-be released report on **Cancer Surgery Quality in Manitoba**, and will expand to include spotlight reports for different departments (e.g., Cancer Screening Programs) and populations (e.g., Cancer in Older Populations). We plan to release new and exciting spotlight reports on a regular basis. Watch our website for these reports as they are released!

REGIONAL PROFILES



REGIONAL PROFILE: 2019 MANITOBA CANCER SYSTEM PERFORMANCE REPORT

Winnipeg Regional Health Authority

The **Winnipeg Regional Health Authority** (Winnipeg RHA) serves residents of the city of Winnipeg, as well as the northern community of Churchill, and the rural municipalities of East and West St. Paul. The RHA also provides healthcare support and specialty referral services to nearly half a million Manitobans who live beyond these boundaries, as well as residents of Northwestern Ontario and Nunavut.

Demographics[1]:
- **Population:** 720,883 people (Manitoba 1,278,378 people)
- **Land Area:** 648 km^2 (Manitoba: 552,000 km^2)
- **Density:** 1,112 people per km^2 (Manitoba: 2.3 people/km^1)
- **Median Age:** 38.9 years (Manitoba: 38.3 years)

CancerCare Manitoba sites:
- 675 McDermot Avenue including Urgent Cancer Care Clinic
- 409 Taché Avenue (at St. Boniface General Hospital)

Community Hospital Cancer Clinics:
- Grace Hospital
- Concordia Hospital
- Seven Oaks General Hospital
- Victoria General Hospital

In 2016, nearly 6,500 Manitobans received a new cancer diagnosis.

3,737 of these cancer cases resided within the Winnipeg RHA.

The number of new cancer cases is expected to continue rising.

By 2035, about 10,000 new cancer cases will be diagnosed every year.

Over 6,000 new cases of cancer can be expected in the Winnipeg RHA in 2035.

[1]Statistics Canada. (2016). Data product, 2016 Census. Available at: https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E (accessed [5 April 2019]).

* AOPSS = Ambulatory Oncology Patient Satisfaction Survey

Every year cancer kills over 2,700 Manitobans.

Mortality rate:
207 per 100,000 people
(age-standardized mortality rate, 2014-16)

1,576 people from Winnipeg RHA die of cancer each year.
(average, 2014-16)

Mortality rate:
201 per 100,000
(age-standardized mortality rate, 2014-2016)

Strengths of Winnipeg RHA

19% of adults in Winnipeg RHA reported a Body Mass Index classified as "obese" (based on self-reported height and weight). **This is lower than any other health region or Manitoba overall.**

RHA range: 19%-32%
Manitoba: 22%

66% of women 21-69 years of age had a Pap test within the last 3 years in Winnipeg RHA. **This is one of the highest cervical cancer screening rates in the province.**

RHA range: 55%-66%
Manitoba: 65%

The removal of all axillary lymph nodes is not recommended for breast cancer cases where cancer has not spread to the lymph nodes. **Winnipeg RHA had the lowest percentage of cases with resected negative nodes (13%)** compared to other health regions.

RHA range: 13-33%
Manitoba: 19%
Target: 10%

Age-standardized mortality rate for all invasive cancers is significantly lower than Manitoba **(201 per 100,000)**.

RHA range: 201-264 per 100,000
Manitoba: 207 per 100,000

Areas for Improvement

Age-standardized incidence rate for breast cancer is significantly higher in Winnipeg RHA than Manitoba **(127 per 100,000)**.

RHA range: 98-128 per 100,000
Manitoba: 120 per 100,000

40% of patients with stage II or IIIA non-small cell lung cancer received guideline-concordant post-operative chemotherapy within 120 days of a surgical resection. **This is lower than any most other health regions and is a decline from** 2011-2013 (43%).

RHA region: 31%-65%
Manitoba: 45%

Only 35% of Winnipeg RHA AOPSS* respondents reported that they felt their care providers considered their travel concerns when planning treatment.

RHA range: 35%-59%
Manitoba: 48%

The **Manitoba Cancer System Performance Report** is the first report in a series of upcoming reports that highlight a wide range of metrics measured at CancerCare Manitoba. This System Performance series includes a soon-to-be released report on Cancer Surgery Quality in Manitoba, and will expand to include spotlight reports for different departments (e.g., Cancer Screening Programs) and populations (e.g., Cancer in Older Populations). We plan to release new and exciting spotlight reports on a regular basis. Watch our website for these reports as they are released!

Visit www.cancercare.mb.ca for more information.

See the 2019 Manitoba Cancer System Performance Report and related technical appendix for more information on these indicators, including their data sources and methodological details.

REGIONAL PROFILE: 2019 MANITOBA CANCER SYSTEM PERFORMANCE REPORT

Prairie Mountain Health

Prairie Mountain Health (PMH) is the governing body for healthcare regulation in south-western Manitoba. Prairie Mountain Health was officially formed in June 2012, following the Manitoba government amalgamation of the former Regional Health Authorities of Assiniboine, Brandon and Parkland.

Demographics[1]:

- **Population:** 165,600 people (Manitoba: 1,278,378 people)
- **Land Area:** 64,800 km^2 (Manitoba: 552,000 km^2)
- **Density:** 2.6 people per km^2 (Manitoba: 2.3 people/km^2)
- **Median Age:** 40.6 years (Manitoba: 38.3 years)

CancerCare Manitoba sites:

- Deloraine
- Hamiota
- Neepawa
- Russell
- Swan River

Regional Cancer Program sites:

- Brandon Western Manitoba Cancer Centre
- Dauphin

In 2016, nearly 6,500 Manitobans received a new cancer diagnosis.

911 of these cancer cases resided within Prairie Mountain Health.

The number of new cancer cases is expected to continue rising.

By 2035, about 10,000 new cancer cases will be diagnosed every year.

Nearly 1,600 new cases of cancer can be expected in Prairie Mountain Health in 2035.

[1]Statistics Canada. (2016). Data product, 2016 Census. Available at: https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E (accessed [5 April 2019]).

* AOPSS = Ambulatory Oncology Patient Satisfaction Survey

Every year cancer kills over 2,700 Manitobans.

Mortality rate:
207 per 100,000 people
(age-standardized mortality rate, 2014-16)

437 people from Prairie Mountain Health die of cancer each year.
(average, 2014-16)

Mortality rate:
211 per 100,000
(age-standardized mortality rate, 2014-2016)

Strengths of Prairie Mountain Health

58% of women 50-74 years of age were screened for breast cancer within the last 2 years in PMH. **This is one of the highest breast cancer screening rates in the province.**

RHA range: 51%-58%
Manitoba: 56%

The one-year relative survival rate for colorectal cancer was **highest** in PMH.
One-Year (85%)

RHA range: 81% – 85%
Manitoba: 83%

One-year and five-year relative survival rates for lung cancer are the highest in the province.
One-Year (50%)
Five-Year (24%)

One-year: RHA range: 43% - 50%
Manitoba: 47%
Five-year: RHA range: 20% - 24%
Manitoba: 23%

Age-standardized incidence rate for prostate cancer is significantly lower in PMH than Manitoba **(98 per 100,000)**.

RHA range: 98-137 per 100,000
Manitoba: 112 per 100,000

Age-standardized incidence rate for breast cancer is significantly lower in PMH than Manitoba **(98 per 100,000).**

RHA range: 98 -128 per 100,000
Manitoba: 120 per 100,000

45% of patients with lung and bronchus cancer were **diagnosed at late stage (stage IV). This is lower than any other health region.**

RHA range: 45% - 53%
Manitoba: 48%

PMH had the **highest possible AOPSS* score** for overall patient satisfaction (100%).

RHA range: 97%-100%
Manitoba: 99%

Areas for Improvement

25% of prostate cancer patients from PMH were **diagnosed at late stage** (stage IV). This is higher than any other health region or Manitoba overall.

RHA range: 11% - 25%
Manitoba: 17%

The removal of all axillary lymph nodes is not recommended for breast cancer cases where cancer has not spread to the lymph nodes. **PMH had the highest percentage of cases with resected negative nodes (33%)** compared to other health regions.

RHA range: 13% - 33%
Manitoba: 19%
Target: 10%

Age-standardized incidence rate for colorectal cancer is significantly higher in PMH than Manitoba **(72 per 100,000)**.

RHA range: 57-86 per 100,000;
Manitoba: 62 per 100,000

The **Manitoba Cancer System Performance Report** is the first report in a series of upcoming reports that highlight a wide range of metrics measured at CancerCare Manitoba. This System Performance series includes a soon-to-be released report on Cancer Surgery Quality in Manitoba, and will expand to include spotlight reports for different departments (e.g., Cancer Screening Programs) and populations (e.g., Cancer in Older Populations). We plan to release new and exciting spotlight reports on a regular basis. Watch our website for these reports as they are released!

Visit www.cancercare.mb.ca for more information.

See the 2019 Manitoba Cancer System Performance Report and related technical appendix for more information on these indicators, including their data sources and methodological details.

REGIONAL PROFILE: 2019 MANITOBA CANCER SYSTEM PERFORMANCE REPORT

Interlake-Eastern Regional Health Authority

The **Interlake-Eastern Regional Health Authority (IERHA)** is the governing body for healthcare regulation in the Interlake and eastern regions of Manitoba, Canada. IERHA was officially formed in June 2012, following the Manitoba government amalgamation of the former Regional Health Authorities of Interlake and North Eastman.

Demographics[1]:

- **Population:** 127,601 people (Manitoba: 1,278,378 people)
- **Land Area:** 81,350 km^2 (Manitoba: 552,000 km^2)
- **Density:** 1.6 people per km^2 (Manitoba: 2.3 people/km^2)
- **Median Age:** 44.2 years (Manitoba: 38.3 years)

CancerCare Manitoba sites:

- Gimli
- Pinawa

Regional Cancer Program sites:

- Selkirk

In 2016, nearly 6,500 Manitobans received a new cancer diagnosis.

758 of these cancer cases resided within the Interlake-Eastern RHA.

The number of new cancer cases is expected to continue rising.

By 2035, about 10,000 new cancer cases will be diagnosed every year.

Nearly 1,300 new cases of cancer can be expected in the Interlake-Eastern RHA in 2035.

[1]Statistics Canada. (2016). Data product, 2016 Census. Available at: https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E (accessed [5 April 2019]).

* AOPSS = Ambulatory Oncology Patient Satisfaction Survey

Every year cancer kills over 2,700 Manitobans.

Mortality rate:
207 per 100,000 people
(age-standardized mortality rate, 2014-16)

314 people from Interlake-Eastern RHA die of cancer each year.
(average, 2014-16)

Mortality rate:
218 per 100,000
(age-standardized mortality rate, 2014-2016)

Strengths of Interlake-Eastern Regional Health Authority (IERHA)

92% of colon resections include the removal and examination of 12 or more lymph nodes. **This meets and exceeds the national target of 90%.**

RHA range: 92%-93%;
Manitoba: 92%

65% of patients with stage II or IIIA non-small cell lung cancer received guideline-concordant post-operative chemotherapy within 120 days of a surgical resection. **This is higher than any other RHA in Manitoba and far exceeds the best performing province (51%).**[53] In addition, the region has seen great improvements since 2011-2013 (40%).

RHA range: 31%-65%;
Manitoba 45%

Five-year relative survival for colorectal cancer is highest for those living within the IERHA at 67%. This is higher than any other health region, the Manitoban estimate, or estimates for other similar countries.

RHA range: 61% - 67%;
Manitoba: 65%

Areas for Improvement

53% of individuals diagnosed with lung and bronchus cancer were **diagnosed at late stage (stage IV).**

RHA range: 45% - 53%;
Manitoba: 48%

Age-standardized incidence rate for prostate cancer is significantly higher in IERHA than Manitoba **(137 per 100,000).**

RHA range: 98 -137 per 100,000;
Manitoba: 112 per 100,000

Only 46% of IERHA AOPSS* respondents reported that they felt their care providers considered their travel concerns when planning treatment.

RHA range: 35%-59%;
Manitoba: 48%

Age-standardized mortality rate for breast cancer is higher in IERHA than other health regions **(30 per 100,000).**

RHA range: 23 - 30 per 100,000;
Manitoba: 27 per 100,000

The **Manitoba Cancer System Performance Report** is the first report in a series of upcoming reports that highlight a wide range of metrics measured at CancerCare Manitoba. This System Performance series includes a soon-to-be released report on Cancer Surgery Quality in Manitoba, and will expand to include spotlight reports for different departments (e.g., Cancer Screening Programs) and populations (e.g., Cancer in Older Populations). We plan to release new and exciting spotlight reports on a regular basis. Watch our website for these reports as they are released!

Visit www.cancercare.mb.ca for more information.

See the 2019 Manitoba Cancer System Performance Report and related technical appendix for more information on these indicators, including their data sources and methodological details.

REGIONAL PROFILE: 2019 MANITOBA CANCER SYSTEM PERFORMANCE REPORT

Southern Health - Santé Sud

Southern Health-Santé Sud is the governing body for healthcare regulation in the southeastern and south-central regions of Manitoba. Southern Health-Santé Sud was officially formed in June 2012, following the Manitoba government amalgamation of the former Regional Health Authorities of Central and South Eastman Health/Santé Sud-Est.

Demographics[1]:
- **Population:** 192,061 people (Manitoba: 1,278,378 people)
- **Land Area:** 26,984 km^2 (Manitoba: 552,000 km^2)
- **Density:** 7.1 people per km^2 (Manitoba: 2.3 people/km^2)
- **Median Age:** 34.8 years (Manitoba: 38.3 years)

CancerCare Manitoba sites:
- Portage la Prairie
- Steinbach

Regional Cancer Program sites:
- Boundary Trails

In 2016, nearly 6,500 Manitobans received a new cancer diagnosis.

822 of these cancer cases resided within Southern Health - Santé Sud.

The number of new cancer cases is expected to continue rising.

By 2035, about 10,000 new cancer cases will be diagnosed every year.

Nearly 1,600 new cases of cancer can be expected in Southern Health - Santé Sud in 2035.

[1]Statistics Canada. (2016). Data product, 2016 Census. Available at: https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E (accessed [5 April 2019]).

* AOPSS = Ambulatory Oncology Patient Satisfaction Survey

Every year cancer kills over 2,700 Manitobans.

Mortality rate:
207 per 100,000 people
(age-standardized mortality rate, 2014-16)

357 people from Southern Health - Santé Sud die of cancer each year.
(average, 2014-16).

Mortality rate:
206 per 100,000
(age-standardized mortality rate, 2014-2016)

Strengths of Southern Health - Santé Sud

Current smoking rates are are **lowest in the province at 13%**

RHA range: 13% - 29%
Manitoba: 19%

Age-standardized mortality rate for all invasive cancers in females is lowest compared to other health regions (177 per 100,000).

RHA range: 177 - 226 per 100,000
Manitoba: 182 per 100,000

18% of patients with colorectal cancer were **diagnosed at late stage (stave IV). This is lower than any other health region.**

RHA range: 18% - 29%
Manitoba: 20%

Highest possible AOPSS* score for overall patient satisfaction (100%)

RHA range: 97% - 100%
Manitoba: 99%

Age-standardized mortality rate for colorectal cancer in females is lowest compared to other health regions **(19 per 100,000).**

RHA range: 19 - 41 per 100,000
Manitoba: 21 per 100,000

Age-standardized mortality rate for lung cancer is significantly lower than Manitoba overall **(43 per 100,000).**

RHA range: 43 - 58 per 100,000
Manitoba: 50 per 100,000

Areas for Improvement

31% of patients with stage II or IIIA non-small cell lung cancer received guideline-concordant post-operative chemotherapy within 120 days of a surgical resection. **This is lower than any other health region.** The region has shown improvements since 2011-2013 (27%).

RHA region: 31% - 65%
Manitoba: 45%

Southern Health – Santé Sud had the lowest AOPSS* score **(47%)** for **Emotional Support dimension of person-centred care** compared to other health regions.

RHA range: 47% - 55%
Manitoba: 50%

71% of patients with stage I or II breast cancer received guideline-concordant post-operative radiation within 270 days of breast conserving surgery (lumpectomy)**. This is lower than any other health region and has declined since 2011-2013 (77%).**

RHA region: 71% - 76%
Manitoba: 75%

The **Manitoba Cancer System Performance Report** is the first report in a series of upcoming reports that highlight a wide range of metrics measured at CancerCare Manitoba. This System Performance series includes a soon-to-be released report on Cancer Surgery Quality in Manitoba, and will expand to include spotlight reports for different departments (e.g., Cancer Screening Programs) and populations (e.g., Cancer in Older Populations). We plan to release new and exciting spotlight reports on a regular basis. Watch our website for these reports as they are released!

Visit www.cancercare.mb.ca for more information.

See the 2019 Manitoba Cancer System Performance Report and related technical appendix for more information on these indicators, including their data sources and methodological details.

REGIONAL PROFILE: 2019 MANITOBA CANCER SYSTEM PERFORMANCE REPORT

Northern Regional Health Authority

The **Northern Regional Health Authority** (Northern RHA) is the governing body for healthcare regulation in northern Manitoba, excluding Churchill. The Northern RHA was officially formed in June 2012, following the Manitoba government amalgamation of the former Regional Health Authorities of Burntwood and Nor-Man. The Northern RHA is geographically the largest of the five Regional Health Authorities (RHAs) in the province of Manitoba.

Demographics[1]:
- **Population:** 72,220 people (Manitoba: 1,278,378 people)
- **Land Area:** 379,000 km^2 (Manitoba: 552,000 km^2)
- **Density:** 0.2 people per km^2 (Manitoba: 2.3 people/km^2)
- **Median Age:** 27.3 years (Manitoba: 38.3 years)

CancerCare Manitoba sites:
- Flin Flon

Regional Cancer Program sites:
- The Pas
- Thompson

In 2016, nearly 6,500 Manitobans received a new cancer diagnosis.

253 of these cancer cases resided within the Northern RHA.

The number of new cancer cases is expected to continue rising.

By 2035, about 10,000 new cancer cases will be diagnosed every year.

Nearly 380 new cases of cancer can be expected in Northern RHA in 2035.

[1]Statistics Canada. (2016). Data product, 2016 Census. Available at: https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E (accessed [5 April 2019]).

* AOPSS = Ambulatory Oncology Patient Satisfaction Survey

Every year cancer kills over 2,700 Manitobans.

Mortality rate:
207 per 100,000 people
(age-standardized mortality rate, 2014-16)

99 people from Northern RHA die of cancer each year.
(average, 2014-16)

Mortality rate:
263 per 100,000
(age-standardized mortality rate, 2014-2016)

Strengths of Northern RHA

93% of colon resections include the removal and examination of 12 or more lymph nodes. **This meets and exceeds the national target of 90%.**

RHA range: 92% - 93%;
Manitoba: 92%

Northern RHA received an **AOPSS*** score of 97% **for** overall patient satisfaction.

RHA range: 97%-100%
Manitoba: 99%

An overall score of **76%** was reported by patients from the Northern RHA for the AOPSS* dimension of **Access to Care.**

RHA range: 69% - 80%
Manitoba: 74%

Age-standardized mortality rate for breast cancer is lowest compared to other health regions **(23 per 100,000).**

RHA range: 23– 30 per 100,000
Manitoba: 27 per 100,000

11% of individuals diagnosed with prostate cancer were diagnosed at late stage (stage IV). This is lower than any other health region.

RHA range: 11% - 25%
Manitoba: 17%

Areas for Improvement

Reported current smoking rates are the **highest in the province at 29%.**

RHA range: 13%-29%
Manitoba: 19%

Northern RHA has the lowest breast, cervix, and colon cancer screening rates in Manitoba.

Breast: 51%
(RHA range: 51% - 58%)
Cervix: 55%
(RHA range: 55% - 66%)
Colon: 38%
(RHA range: 38% - 54%)

29% of individuals diagnosed with colorectal cancer were diagnosed at late stage (stage IV). **This is higher than any other health region.**

RHA range: 18% - 29%
Manitoba: 20%

32% of adults in Northern RHA reported a Body Mass Index classified as "obese" (based on self-reported height and weight).

RHA range: 19%-32%
Manitoba: 22%

The **Manitoba Cancer System Performance Report** is the first report in a series of upcoming reports that highlight a wide range of metrics measured at CancerCare Manitoba. This System Performance series includes a soon-to-be released report on Cancer Surgery Quality in Manitoba, and will expand to include spotlight reports for different departments (e.g., Cancer Screening Programs) and populations (e.g., Cancer in Older Populations). We plan to release new and exciting spotlight reports on a regular basis. Watch our website for these reports as they are released!

Visit www.cancercare.mb.ca for more information.

See the 2019 Manitoba Cancer System Performance Report and related technical appendix for more information on these indicators, including their data sources and methodological details.

LIST OF REPORT TABLES

LIST OF REPORT FIGURES

REFERENCES

1 Health Canada Population and Public Health Branch. (1998). *Economic burden of illness in Canada*. Ottawa, ON: Health Canada. Available at: http://publications.gc.ca/collections/Collection/H21-136-1998E.pdf (accessed [14 February 2019]).

2 de Oliveira C., Weir S., Rangrej J., et al. (2018). The economic burden of cancer care in Canada: A population-based cost study. *CMAJ Open* 2018. doi:10.9778/cmajo.20170144.

3 IQVIA. (2016). *Medicines Use and Spending in the U.S.A Review of 2016 and Outlook to 2021*. Durham, NC: IQVIA. Available at: https://www. iqvia. com/ institute/ reports/ medicines-use- and- spending- in- the- us- a- review- of- 2016 (accessed [8 April 2018]).

4 Prager GW, Braga S, Bystricky B, et al. (2018). Global cancer control: Responding to the growing burden, rising costs and inequalities in access. *ESMO Open,* 3(e000285). doi:10.1136/esmoopen-2017-00285.

5 Canadian Cancer Statistics Advisory Committee. (2018). *Canadian Cancer Statistics 2018*. Toronto, ON: Canadian Cancer Society. Available at: cancer.ca/Canadian-Cancer-Statistics-2018-EN (accessed [14 February 2019]).

6 CancerCare Manitoba. (2010). *CancerCare Manitoba 2010 Community Health Assessment*. Winnipeg, MB: CancerCare Manitoba. Available at: www.cancercare.mb.ca/About-Us/corporate-publications (accessed [03 April 2019]).

7 Brenner, D. R., Poirier, A. E., Walter, S. D., et al. (2018). Estimating the current and future cancer burden in Canada: Methodological framework of the Canadian population attributable risk of cancer (ComPARe) study. *BMJ Open*, 8(7), e022378. doi:10.1136/bmjopen-2018-022378.

8 Parkin, D. M., Boyd, L., & Walker, L. C. (2011). The fraction of cancer attributable to lifestyle and environmental factors in the UK in 2010. *Br J Cancer*, 105 Suppl 2(Suppl 2), S77-S81. doi:10.1038/bjc.2011.489.

9 Ford, E.S., Bergmann, M.M., Kroger, J., et al. (2009). Healthy living is the best revenge: Findings from the European Prospective Investigation Into Cancer and Nutrition-Potsdam study. *Arch Intern Med*, 169(15), 1355-1362. doi:10.1001/archinternmed.2009.237.

10 de Oliveira, C., Weir, S., Aurangzeb, Z., et al. (2019). Trends in the utilisation and costs of initial cancer-specific care in four geographically diverse Canadian provinces: a population-based descriptive analysis. Toronto, ON: Canadian Cancer Costing Consortium [Working Paper].

11 de Oliveira C, Bremner KE, Pataky R, et al. (2013). Understanding the costs of cancer care before and after diagnosis for the 21 most common cancers in Ontario: A population-based descriptive study. *CMAJ Open*. doi:10.9778/cmajo.20120013.

12 Yabroff KR, Lamont EB, Mariotto A, et al. (2008). Cost of care for elderly cancer patients in the United States. *J Natl Cancer Inst,* 100(9), 630-41. doi: 10.1093/jnci/djn103.

13 Warren JL, Yabroff KR, Meekins A, et al. (2008). Evaluation of trends in the cost of initial cancer treatment. *J Natl Cancer Inst,* 100(12), 888-97. doi: 10.1093/jnci/djn175.

14 Danaei, G., Vander Hoorn, S., Lopez, A.D., et al. (2005). Causes of cancer in the world: Comparative risk assessment of nine behavioural and environmental risk factors. *Lancet,* 366(9499), 1784-1793. doi:10.1016/s0140-6736(05)67725-2.

15 Bagnardi, V., Rota, M., Botteri, E., et al. (2015). Alcohol consumption and site-specific cancer risk: a comprehensive dose-response meta-analysis. *Br J Cancer,* 112(3), 580-593. doi:10.1038/bjc.2014.579.

16 World Health Organization Office of Publications. (1998). *Manual on the prevention and control of common cancers. WHO Regional Publications, Western Pacific Series, No. 20*. Geneva, Switzerland: World Health Organization. Available at: http://www.pacificcancer.org/pacp-resources/key-cancer-publications/Prevention-and-Control-of-Common-Cancers.pdf (accessed [15 February 2019]).

17 Shields, M., Tremblay, M.S., Laviolette, M., et al. (2010). Fitness of Canadian adults: results from the 2007-2009 Canadian Health Measures Survey. *Health Rep,* 21(1), 21-35.

18 Statistics Canada. (2016). Table 13-10-0096-01 Health characteristics, annual estimates. Ottawa, ON: Statistics Canada, 2016. Available at: https://www150.statcan.gc.ca/t1/tbl1/en/cv.action?pid=1310009601#timeframe (accessed [3 July 2019]).

19 World Cancer Research Fund. (2007). *Food, nutrition, physical activity, and the prevention of cancer: A global perspective*. Washington, DC: American Institute for Cancer Research. Available at: http://www.aicr.org/assets/docs/pdf/reports/Second_Expert_Report.pdf (accessed [15 February 2019]).

20 National Advisory Committee on Immunization. (2017). *An Advisory Committee Statement (ACS) National Advisory Committee on Immunization (NACI) updated recommendations on human papillomavirus (HPV) Vaccines: 9-valent HPV vaccine 2-dose immunization schedule and the use of HPV vaccines in immunocompromised populations.* Ottawa, ON: National Advisory Committee on Immunization. Available at:https://www.canada.ca/content/dam/phac-aspc/documents/services/publications/healthy-living/updated-recommendations-human-papillomavirus-immunization-schedule-immunocompromised-populations/updated-recommendations-human-papillomavirus-immunization-schedule-immunocompromised-populationsv3-eng.pdf (accessed [10 June 2019]).

21 Canadian Partnership Against Cancer. (2017). *The 2017 Cancer System Performance Report*. Toronto, ON: Canadian Partnership Against Cancer. Available at: https://www.systemperformance.ca/report/2017-cancer-system-performance-report/ (accessed [15 February 2019]).

22 Statistics Canada, Health Fact Sheets. (2017). *Cancer Screening, 2017*. Catalogue no.82-625-X. Ottawa, ON: Statistics Canada. Available at: https://www150.statcan.gc.ca/n1/en/pub/82-625-x/2018001/article/54977-eng.pdf?st=RqpiDxoe (accessed [11 June 2019]).

23 Canadian Cancer Society's Advisory Committee on Cancer Statistics. (2017). *Canadian Cancer Statistics 2017*. Toronto, ON: Canadian Cancer Society. Available at: cancer.ca/Canadian-Cancer-Statistics-2017-EN (accessed [14 February 2019]).

24 Hewitson, P., Glasziou, P., Irwig, L., et al. (2007). Screening for colorectal cancer using the faecal occult blood test, hemoccult. *Cochrane Database Syst Rev,* (1), Cd001216. doi:10.1002/14651858.CD001216.pub2.

25 Statistics Canada, Vital Statistics Death Database. (2016). *Custom tabulation (1992-2006), 16 February 2011*. Catalogue no.82-625-X. Ottawa, ON: Statistics Canada. Available at: https://www12.statcan.gc.ca/census-recensement/2006/consultation/92-135/surveys-enquetes/deathdb-bddeces-eng.cfm (accessed [15 February 2019]).

26 Statistics Canada, Canadian Cancer Registry. (2016). *Custom tabulation (1992-2007), 16 February 2011*. Catalogue no.82-625-X. Ottawa, ON: Statistics Canada. Available at: https://www12.statcan.gc.ca/census-recensement/2006/consultation/92-135/surveys-enquetes/deathdb-bddeces-eng.cfm (accessed [15 February 2019]).

27 Galligan, A. J. (2017). Childhood cancer survivorship and long-term outcomes. *Adv Pediatr*, 64(1), 133-169. doi:10.1016/j.yapd.2017.03.014.
28 Pizzo PA, Poplack DG, editors. (2010). *Principles and practice of pediatric oncology, 6th ed*. Philadelphia, PA: Lippincott Williams & Wilkins.
29 Oeffinger, K. C., Mertens, A. C., Sklar, et al. (2006). Chronic health conditions in adult survivors of childhood cancer. *N Engl J Med*, 355(15), 1572-1582. doi:10.1056/NEJMsa060185.
30 Canadian Partnership Against Cancer. (2017). *Adolescents & young adults with cancer: A system performance report*. Toronto, ON: Canadian Partnership Against Cancer. Available at: https://www.kidscancercare.ab.ca/upload/media_element/317/b018e7b3ccb2/report---adolescents-and-young-adults-with-cancer---en.pdf/ (accessed [15 February 2019]).
31 Canadian Cancer Society's Steering Committee. (2009). *Canadian Cancer Statistics 2009*.Toronto, ON: Canadian Cancer Society.Available at: http://www.cancer.ca/~/media/cancer.ca/CW/cancer%20information/cancer%20101/Canadian%20cancer%20statistics/Canadian-Cancer-Statistics-2009-EN.pdf?la=en (accessed [14 February 2019]).
32 CancerCare Manitoba. (2018). *Moving forward after cancer & blood disorder treatment as an adolescent or young adult.* Winnipeg, MB: CancerCare Manitoba. Available at: www.movingforwardaftercancer.ca (accessed [26 February 2019]).
33 Hay, A. E., Rae, C., Fraser, G. A., et al. (2016). Accrual of adolescents and young adults with cancer to clinical trials. *Current Oncology,* 23(2), e81-5.
34 Abbott, L.S., Hay, A.E., Willman, C., et al. (2014). Accrual of adolescents and young adults with cancer to eligible clinical trials: A report from the NCIC Clinical Trials Group (NCIC-CTG). *J Clin Onc*, 32(15_suppl), 6543-6543. doi:10.1200/jco.2014.32.15_suppl.6543.
35 Klein-Geltink, J., Shaw, A.K., et al. (2005). Use of paediatric versus adult oncology treatment centres by adolescents 15-19 years old: The Canadian Childhood Cancer Surveillance and Control Program. *Eur J Cancer*, 41(3), 404-410. doi:10.1016/j.ejca.2004.10.023.
36 Fern, L. A., & Whelan, J. S. (2010). Recruitment of adolescents and young adults to cancer clinical trials--international comparisons, barriers, and implications. *Semin Oncol*, 37(2), e1-8. doi:10.1053/j.seminoncol.2010.04.002.
37 Freyer, D. R., & Seibel, N. L. (2015). The clinical trials gap for adolescents and young adults with cancer: Recent progress and conceptual framework for continued research. *Current Pediatrics Reports,* 3(2), 137-145. doi:10.1007/s40124-015-0075-y.
38 Canadian Partnership Against Cancer. (2015). *Cancer stage in performance measurement: A first look - A system performance spotlight report.* Toronto, ON: Canadian Partnership Against Cancer. Available at: https://www.systemperformance.ca/report/cancer-stage-in-performance-measurement-a-first-look/ (accessed [26 February 2019]).
39 Canadian Cancer Statistics Advisory Committee. (2018). *Canadian Cancer Statistics: A 2018 special report on cancer incidence by stage*. Toronto, ON: Canadian Cancer Society. Available at: http://www.cancer.ca/~/media/cancer.ca/CW/cancer%20information/cancer%20101/Canadian%20cancer%20statistics/Canadian-Cancer-Statistics-2018-EN.pdf?la=en (accessed [26 February 2019]).
40 Olivotto, I. A., Bancej, C., Goel, V., et al. (2001). Waiting times from abnormal breast screen to diagnosis in 7 Canadian provinces. *CMAJ*, 165(3), 277-283.
41 Decker, K.M., Harrison, M., Chateau, D. (2004). Influence of direct referral on time to diagnosis after an abnormal breast screening result. *Cancer Detection and Prevention*, 28(5): 361-367.
42 Canadian Partnership Against Cancer. (2016). *A coordinated approach to improve consistency in surgical care across Canada: Pan-Canadian standards for eight types of cancer*. Toronto (ON): Canadian Partnership Against Cancer. Available at: https://dev.partnershipagainstcancer.ca/wp-content/uploads/2019/01/Pan-Canadian-Standards-Eight-Types-Cancer-Report-EN.pdf (accessed [26 February 2019]).
43 The American Society of Breast Surgeons. (2015). *Consensus Guideline on Breast Cancer Lumpectomy Margins*. Columbia (MD): The Americal Society of Breast Surgeons. Available at: https://www.breastsurgeons.org/statements/PDF_ Statements/Lumpectomy_Margins.pdf (accessed [26 February 2019]).
44 Lovrics, P., Hodgson, N., O'Brien, M. A., et al. (2014). Results of a surgeon-directed quality improvement project on breast cancer surgery outcomes in South-Central Ontario. *Ann Surg Oncol*, 21(7), 2181-2187. doi:10.1245/s10434-014-3592-y.
45 American Society of Colon and Rectal Surgeons. (2007). ASCRS and WOCN joint position statement on the value of preoperative stoma marking for patients undergoing fecal ostomy surgery. *J Wound Ostomy Continence Nurs*, 34(6), 627-628. doi:10.1097/01.WON.0000299812.08533.a6.
46 Person, B., Ifargan, R., Lachter, J., et al. (2012). The impact of preoperative stoma site marking on the incidence of complications, quality of life, and patient's independence. *Dis Colon Rectum,* 55(7), 783-787. doi:10.1097/DCR.0b013e31825763f0.
47 MD Anderson Cancer Center. (2018). *Rectal cancer algorithm*. Houston (TX): MD Anderson Cancer Center. Available at: https://www.mdanderson.org/documents/for-physicians/algorithms/cancer-treatment/ca-treatment-rectal-web-algorithm.pdf (accessed [26 February 2019]).
48 van Gijn, W., Marijnen, C. A., Nagtegaal, I. D., et al. (2011). Preoperative radiotherapy combined with total mesorectal excision for resectable rectal cancer: 12-year follow-up of the multicentre, randomised controlled TME trial. *Lancet Oncol*, 12(6), 575-582. doi:10.1016/s1470-2045(11)70097-3.
49 Sauer, R., Becker, H., Hohenberger, W., et al. (2004). Preoperative versus postoperative chemoradiotherapy for rectal cancer. *N Engl J Med*, 351(17), 1731-1740. doi:10.1056/NEJMoa040694.
50 Kapiteijn, E., Marijnen, C. A., Nagtegaal, I. D., et al. (2001). Preoperative radiotherapy combined with total mesorectal excision for resectable rectal cancer. *N Engl J Med*, 345(9), 638-646. doi:10.1056/NEJMoa010580.
51 Boland, P. M., & Fakih, M. (2014). The emerging role of neoadjuvant chemotherapy for rectal cancer. *Journal of Gastrointest Oncol*, 5(5), 362-73.
52 National Health Services Scotland. (2014). *Breast cancer quality performance indicators. Glasgow (Scotland)*. Available at: http://www.isdscotland.org/Health-Topics/Quality-Indicators/Publications/2014-04-29/2014-04-29-BreastQPI-Report.pdf (accessed [26 February 2019]).
53 Canadian Partnership Against Cancer. (2018). *The 2018 Cancer System Performance Report*. Toronto, ON: Canadian Partnership Against Cancer. Available at: https://stg.partnershipagainstcancer.ca/wp-content/uploads/2019/01/2018-Cancer-System-Performance-Report-EN.pdf (accessed [3 May 2019]).
54 Canadian Partnership Against Cancer. (2015). *The 2015 Cancer System Performance Report*. Toronto, ON: Canadian Partnership Against Cancer. Available at: https://www.systemperformance.ca/report/2015-cancer-system-performance-report/ (accessed [15 February 2019]).
55 Gradishar, W.J., Anderson, B.O., Balassanian, R., et al. (2016). Invasive Breast Cancer Version 1.2016, NCCN Clinical Practice Guidelines in Oncology. *J Natl Compr Canc Netw*, 14(3), 324-354.

56 Darby, S., McGale, P., Correa, C., et al. (2011). Effect of radiotherapy after breast-conserving surgery on 10-year recurrence and 15-year breast cancer death: meta-analysis of individual patient data for 10,801 women in 17 randomised trials. *Lancet*, 378(9804), 1707-1716. doi:10.1016/s0140-6736(11)61629-2.

57 Veronesi, U., Cascinelli, N., Mariani, L., et al. (2002). Twenty-year follow-up of a randomized study comparing breast-conserving surgery with radical mastectomy for early breast cancer. *N Engl J Med*, 347(16), 1227-1232. doi:10.1056/NEJMoa020989.

58 Clarke, M., Collins, R., Darby, S., et al. (2005). Effects of radiotherapy and of differences in the extent of surgery for early breast cancer on local recurrence and 15-year survival: an overview of the randomised trials. *Lancet*, 366(9503), 2087-2106. doi:10.1016/s0140-6736(05)67887-7.

59 Arriagada, R., Le, M. G., Rochard, F., & Contesso, G. (1996). Conservative treatment versus mastectomy in early breast cancer: patterns of failure with 15 years of follow-up data. Institut Gustave-Roussy Breast Cancer Group. *J Clin Oncol*, 14(5), 1558-1564. doi:10.1200/jco.1996.14.5.1558.

60 Fisher, B., Anderson, S., Bryant, J., et al. (2002). Twenty-year follow-up of a randomized trial comparing total mastectomy, lumpectomy, and lumpectomy plus irradiation for the treatment of invasive breast cancer. *N Engl J Med*, 347(16), 1233-1241. doi:10.1056/NEJMoa022152.

61 Canadian Partnership Against Cancer. (2016). *The 2016 Cancer System Performance Report*. Toronto, ON: Canadian Partnership Against Cancer. Available at: https://www.systemperformance.ca/report/2016-cancer-system-performance-report/(accessed [15 February 2019]).

62 Canadian Partnership Against Cancer. (2018). *Post-operative radiation therapy for stage I or II breast cancer patients.* Toronto, ON: Canadian Partnership Against Cancer. Available at: http://www.systemperformance.ca/disease-sites/breast/radiation-therapy/post-operative-radiation-therapy-for-stage-i-or-ii-breast-cancer-patients/#!figures (accessed [25 March 2019]).

63 Huang X.-Z., Chen Y., Chen W.-J., et al. (2017). Effect of radiotherapy after breast-conserving surgery in older patients with early breast cancer and breast ductal carcinoma in situ: a meta-analysis. *Oncotarget*, 8(17), 28215-28225. doi:10.18632/oncotarget.15998.

64 Canadian Partnership Against Cancer. (2018). *Breast cancer resections that are mastectomies*. Toronto, ON: Canadian Partnership Against Cancer. Available at: https://www.systemperformance.ca/cancer-control-domain/treatment/surgery/breast-cancer-resections-that-are-mastectomies/ (accessed [1 May 2019]).

65 Le Voyer, T.E., Sigurdson, E.R., Hanlon, A.L., et al. (2003). Colon cancer survival is associated with increasing number of lymph nodes analyzed: a secondary survey of intergroup trial INT-0089. *J Clin Oncol*, 21(15), 2912-2919. doi:10.1200/jco.2003.05.062.

66 Bilimoria, K.Y., Palis, B., Stewart, A.K., et al. (2008). Impact of tumor location on nodal evaluation for colon cancer. *Dis Colon Rectum*, 51(2), 154-161. doi:10.1007/s10350-007-9114-2.

67 Lykke, J., Roikjaer, O., & Jess, P. (2013). The relation between lymph node status and survival in Stage I-III colon cancer: results from a prospective nationwide cohort study. *Colorectal Dis,* 15(5), 559-565. doi:10.1111/codi.12059.

68 Benson, A.B., 3rd, Venook, A.P., Cederquist, L., et al. (2017). Colon Cancer, Version 1.2017, NCCN Clinical Practice Guidelines in Oncology. *J Natl Compr Canc Netw*, 15(3), 370-398.

69 Smith, A.J., Driman, D.K., Spithoff, K., et al. (2010). Guideline for optimization of colorectal cancer surgery and pathology. *J Surg Oncol*, 101(1), 5-12. doi:10.1002/jso.21395.

70 Ettinger, D.S., Wood, D.E., Akerley, W., et al. (2016). NCCN Guidelines Insights: Non-Small Cell Lung Cancer, Version 4.2016. *J Natl Compr Canc Netw*, 14(3), 255-264.

71 Pignon, J.P., Tribodet, H., Scagliotti, G.V., et al. (2008). Lung adjuvant cisplatin evaluation: a pooled analysis by the LACE Collaborative Group. *J Clin Oncol*, 26(21), 3552-3559. doi:10.1200/jco.2007.13.9030.

72 Douillard, J.Y., Rosell, R., De Lena, M., et al. (2006). Adjuvant vinorelbine plus cisplatin versus observation in patients with completely resected stage IB-IIIA non-small-cell lung cancer (Adjuvant Navelbine International Trialist Association [ANITA]): a randomised controlled trial. *Lancet Oncol*, 7(9), 719-727. doi:10.1016/s1470-2045(06)70804-x.

73 Winton, T., Livingston, R., Johnson, D., et al. (2005). Vinorelbine plus cisplatin vs. observation in resected non-small-cell lung cancer. *N Engl J Med*, 352(25), 2589-2597. doi:10.1056/NEJMoa043623.

74 Arriagada, R., Bergman, B., Dunant, A., et al. (2004). Cisplatin-based adjuvant chemotherapy in patients with completely resected non-small-cell lung cancer. *N Engl J Med*, 350(4), 351-360. doi:10.1056/NEJMoa031644.

75 Cuffe, S., Booth, C. M., Peng, Y., et al. (2012). Adjuvant chemotherapy for non-small-cell lung cancer in the elderly: a population-based study in Ontario, Canada. *J Clin Oncol*, 30(15), 1813-1821. doi:10.1200/jco.2011.39.3330.

76 Pallis, A. G., Gridelli, C., Wedding, U., et al. (2014). Management of elderly patients with NSCLC; updated expert's opinion paper: EORTC Elderly Task Force, Lung Cancer Group and International Society for Geriatric Oncology. *Ann Oncol*, 25(7), 1270-1283. doi:10.1093/annonc/mdu022.

77 Wisnivesky, J. P., Smith, C. B., Packer, S., et al. (2011). Survival and risk of adverse events in older patients receiving postoperative adjuvant chemotherapy for resected stages II-IIIA lung cancer: observational cohort study. *BMJ (Clinical research ed.)*, 343, d4013-d4013. doi:10.1136/bmj.d4013.

78 Mehta S, Shelling A, Muthukaruppan A, et al. (2010). Predictive and prognostic molecular markers for cancer medicine. *TAM*, 2(2), 125-148. doi: 10.1177/1759934009360519.

79 Nagpal, M., Singh, S., Singh, P., et al. (2016). Tumor markers: A diagnostic tool. *Nat J Maxillofacial Surg*, 7(1), 17-20. doi:10.4103/0975-5950.196135.

80 Canadian Partnership Against Cancer. (2016). *Cancer stage in performance measurement: A first look. System Performance Spotlight Report*. Toronto, ON: Canadian Partnership Against Cancer. Available at: https://www.systemperformance.ca/report/cancer-stage-in-performance-measurement-a-first-look/ (accessed [25 March 2019]).

81 Majumdar, S.R., Roe, M.T., Peterson, E.D., et al. (2008). Better outcomes for patients treated at hospitals that participate in clinical trials. *Arch Intern Med*, 168(6), 657-662. doi:10.1001/archinternmed.2007.124.

82 Selby, P., & Autier, P. (2011). The impact of the process of clinical research on health service outcomes. *Ann Oncol*, 22 Suppl 7, vii5-vii9. doi:10.1093/annonc/mdr419.

83 Hay, A. E., Rae, C., Fraser, G. A., et al. (2016). Accrual of adolescents and young adults with cancer to clinical trials. *Current Oncology*, 23(2), e81-e85. doi:10.3747/co.23.2925.

84 Accreditation Canada. Standards. (2018). *Cancer Care. Version 12*. Ottawa: ON: Accreditation Canada.

85 Canadian Cancer Statistics Advisory Committee. (2018). *Canadian Cancer Statistics 2018*. Toronto, ON: Canadian Cancer Society. Available at: http://www.cancer.ca/~/media/cancer.ca/CW/cancer%20information/cancer%20101/Canadian%20cancer%20statistics/canadian-cancer-statistics-2013-EN.pdf?la=en (accessed [24 March 2019]).

86 Canadian Partnership Against Cancer. (2012). *The 2012 Cancer System Performance Report*. Toronto, ON: Canadian Partnership Against Cancer. Available at: https://www.systemperformance.ca/report/performance-report-2/(accessed [15 February 2019]).

87 Cancer Survival & Prevalence Analytic Network. (2012). *Expanse Newsletter; 4(1)*. Winnipeg: MB: CancerCare Manitoba. Available at: https://www.cancercare.mb.ca/export/sites/default/Research/.galleries/files/epidemiology-cancer-registry-reports-files/newsletters/ExSPANse_Newsletter_2012_May12.pdf.

88 Cancer Survival & Prevalence Analytic Network. (2012). *Cancer survival in Canada: Provincial profiles plus briefings on the ten most common cancer diagnoses*. Winnipeg: MB: CancerCare Manitoba.

89 An Roinn Sláinte, Department of Health. (2016). *Ireland National Cancer Strategy, 2017-2026*. Dublin: Ireland: Department of Health. Available at: https://health.gov.ie/blog/publications/national-cancer-strategy-2017-2026/ (accessed [26 March 2019]).

90 Allemani, C., Matsuda, T., Di Carlo, V., et al. (2018). Global surveillance of trends in cancer survival 2000-14 (CONCORD-3): analysis of individual records for 37 513 025 patients diagnosed with one of 18 cancers from 322 population-based registries in 71 countries. *Lancet*, 391(10125), 1023-1075. doi:10.1016/s0140-6736(17)33326-3.

91 Coleman, M. P., Forman, D., Bryant, H., et al. (2011). Cancer survival in Australia, Canada, Denmark, Norway, Sweden, and the UK, 1995-2007 (the International Cancer Benchmarking Partnership): An analysis of population-based cancer registry data. *Lancet*, 377(9760), 127-138. doi:10.1016/S0140-6736(10)62231-3.

92 Ellison LF. & Wilkins K. (2016). Canadian trends in cancer prevalence. *Statistics Canada Health Reports 2012*; 23(1):82-003-XPE. Ottawa, ON: Statistics Canada, 2016. Available at: https://www150.statcan.gc.ca/n1/pub/82-003-x/2009001/article/10800-eng.htm (accessed [25 March 2019]).

93 Micheli, A., Coebergh, J.W., Mugno, E., et al. (2003). European health systems and cancer care. *Ann Oncol*, 14 Suppl 5, v41-60.

94 De Angelis, R., Grande, E., Inghelmann, R., et al. (2007). Cancer prevalence estimates in Italy from 1970 to 2010. *Tumori*, 93(4), 392-397.

95 Economic Cooperation and Development (OECD). (2017). *Health at a glance 2017: OECD indicators.* Paris, FR: OECD Publishing. Available at: http://dx.doi.org/10.1787/health_glance-2017-en.

96 Canadian Hospice Palliative Care Association. (2013). *Innovative models of integrated hospice palliative care: The WayForward Initiative: An integrated palliative approach to care, 2013*. Ottawa, ON: Canadian Hospice Palliative Care Association. Available at: http://www.hpcintegration.ca/media/40546/TWF-innovative-models-report-Eng-webfinal-2.pdf (accessed [25 March 2019]).

97 Canadian Virtual Hospice. (2017). *What is palliative care?* Available at: http://www.virtualhospice.ca/en_US/Main+Site+Navigation/Home/Topics/Topics/What+Is+Palliative+Care_/What+Is+Palliative+Care_.aspx (accessed [25 March 2019]).

98 Canadian Institute for Health Information. (2018). *Access to Palliative Care in Canada*. Ottawa, ON: Canadian Institute for Health Information. Available at: https://www.cihi.ca/sites/default/files/document/access-palliative-care-2018-en-web.pdf (accessed [25 March 2019]).

99 Temel, J.S., Greer, J.A., Muzikansky, A., et al. (2010). Early palliative care for patients with metastatic non-small-cell lung cancer. *N Engl J Med*, 363(8), 733-742. doi:10.1056/NEJMoa1000678.

100 Murtagh, F.E., Bausewein, C., Verne, J., et al. (2014). How many people need palliative care? A study developing and comparing methods for population-based estimates. *Palliat Med*, 28(1), 49-58. doi:10.1177/0269216313489367

101 Etkind, S. N., Bone, A. E., Gomes, B., et al. (2017). How many people will need palliative care in 2040? Past trends, future projections and implications for services. *BMC Medicine*, 15(1), 102. doi:10.1186/s12916-017-0860-2.

102 Morin, L., Aubry, R., Frova, L., et al. (2017). Estimating the need for palliative care at the population level: A cross-national study in 12 countries. *Palliat Med*, 31(6), 526-536. doi:10.1177/0269216316671280.

103 Canadian Society of Palliative Care Physicians. (2016). *How to improve palliative care in Canada: A call to action for federal, provincial, territorial, regional and local decision-makers.* Surrey, BC: Canadian Society of Palliative Care Physicians. Available at: http://www.cspcp.ca/wp-content/uploads/2016/11/Full-Report-How-to-Improve-Palliative-Care-in-Canada-FINAL-Nov-2016.pdf (accessed [25 March 2019]).

104 Scholten, N., Gunther, A. L., Pfaff, H., & Karbach, U. (2016). The size of the population potentially in need of palliative care in Germany: An estimation based on death registration data. *BMC Palliat Care*, 15, 29. doi:10.1186/s12904-016-0099-2

105 Canadian Hospice Palliative Care Association. (2013). *What Canadians say: The way forward survey report*. Ottawa, ON: Canadian Hospice Palliative Care Association. Available at: http://www.hpcintegration.ca/media/51032/The%20Way%20Forward%20-%20What%20Canadians%20Say%20-%20Survey%20Report%20Final%20Dec%202013.pdf (accessed [25 March 2019]).

106 Statistics Canada. (2016). *Data product, 2016 Census*. Ottawa, ON: Statistics Canada. Available at: https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/index-eng.cfm (accessed [25 March 2019]).

107 Decker, K. M., Kliewer, E. V., Demers, A. A., et al. (2016). Cancer incidence, mortality, and stage at diagnosis in First Nations living in Manitoba. *Current Oncology,* 23(4), 225-232. doi:10.3747/co.23.2906.

108 Decker, K.M., Demers, A.A., Kliewer, E.V., et al. (2015). Pap test use and cervical cancer incidence in First Nations women living in Manitoba. *Cancer Prev Res*, 8(1), 49-55. doi:10.1158/1940-6207.capr-14-0277.

109 Canadian Partnership Against Cancer. (2018). L*iving with Cancer: A Report on the Patient Experience*. Toronto, ON: Canadian Partnership Against Cancer. Available at: https://content.cancerview.ca/download/cv/quality_and_planning/system_performance/documents/living_with_cancer_patient_experience_report_enpdf?attachment=0 (accessed [10 June 2019]).

TECHNICAL APPENDIX

OVERVIEW OF CANCER SYSTEM

Page 9
TABLE 1

Indicator: Number of New Cancer Cases
Definition: Annual number of new cancer cases (invasive cases, all ages, excludes non-melanoma skin cancers as per standard national and international protocols). This number is used by healthcare planners as it estimates direct need for cancer services in a population and associated resource needs.
Timeframe: January 1 - December 31, 2016.
Data Source: Manitoba Cancer Registry.

Indicator: Age-Standardized Incidence Rate
Definition: Annual age-standardized cancer incidence rate per 100,000 people (all ages). Allows the reader to compare cancer incidence rates between regions with different age structures (the rates are "adjusted" or "standardized"so that age differences are taken into account). This is done because age is closely associated with cancer incidence. By removing the effect of age we can make more representative comparisons between populations.
Numerator: All patients diagnosed with invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: All Manitoba residents, from Manitoba Health's population database.
Timeframe: January 1 - December 31, 2016.
Additional Notes: Rates are age-standardized (using the direct standardization method) to the 2011 Manitoba population.
Data Source: Manitoba Cancer Registry, Manitoba Health Senior and Active Living population registry (for denominator).

Indicator: Number of Cancer Deaths
Definition: Annual number of deaths due to invasive cancer (all ages, excluding non-melanoma skin cancers as per standard national and international protocols). This number is used by healthcare planners as it estimates direct need for cancer services in a population and associated resource allocation.
Timeframe: January 1 - December 31, 2016.
Data Source: Manitoba Vital Statistics Death database.

Indicator: Age-Standardized Mortality Rate
Definition: Annual age-standardized cancer mortality rate per 100,000 people (all ages). Allows the reader to compare cancer mortality rates between regions with different age structures (the rates are "adjusted" or "standardized" so that age differences are taken into account). This is done because age is closely associated with cancer mortality. By removing the effect of age we can make more representative comparisons between populations.
Numerator: All patients dying of invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: All Manitoba residents, from Manitoba Health Seniors and Active Living population database.
Timeframe: January 1 - December 31, 2016.
Additional Notes: Rates are age-standardized (using the direct standardization method) to the 2011 Manitoba population.
Data Source: Manitoba Vital Statistics Death database; Manitoba Health Seniors and Active Living population registry (for denominator).

Indicator: 10-year Prevalence
Definition: Number of people diagnosed with an invasive cancer (all ages; includes in situ bladder cancer; excludes non-melanoma skin cancers as per standard national and international protocols) within the last 10-year period, still alive as of January 1, 2016.
Timeframe: January 1, 2006 - December 31, 2015.
Data Source: Manitoba Cancer Registry.

Indicator: 1-Year Relative Survival
Definition: Age-standardized one-year relative survival for cancer (all ages). Relative survival compares the survival experience of individuals with cancer to individuals without cancer (of the same age and sex). It is a way of comparing survival of people who have cancer with those who do not and identifies how much cancer shortens life (see the National Cancer Institute's online dictionary, www.cancer.gov/dictionary/).
Numerator: Observed survival (one year after diagnosis) for all patients who are diagnosed with invasive cancer (includes in situ bladder cancer; excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: Expected survival of Manitobans of a similar age and sex, based on life tables from Statistics Canada.
Timeframe: January 1, 2012 - December 31, 2016.
Additional Notes: Period methodology applied.
Data Source: Manitoba Cancer Registry, Statistics Cancer Life Tables, Canada, Provinces and Territories (84-537-X) [Web resource]. Ottawa, ON: Statistics Canada; 2018 [Available at: https://www150.statcan.gc.ca/n1/pub/84-537-x/84-537-x2018002-eng.htm; cited March 2019].

Indicator: 5-Year Relative Survival
Definition: Age-standardized five-year relative survival for cancer (all ages). Relative survival compares the survival experience of individuals with cancer to individuals without cancer (of the same age and sex). It is a way of comparing survival of people who have cancer with those who do not and identifies how much cancer shortens life (see the National Cancer Institute's online dictionary, www.cancer.gov/dictionary/).
Numerator: Observed survival (five years after diagnosis) for all patients who are diagnosed with invasive cancer (includes in situ bladder cancer; excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: Expected survival of Manitobans of a similar age and sex, based on life tables from Statistics Canada.
Timeframe: January 1, 2012 - December 31, 2016.
Additional Notes: Period methodology applied.
Data Source: Manitoba Cancer Registry, Statistics Cancer Life Tables, Canada, Provinces and Territories (84-537-X) [Web resource]. Ottawa, ON: Statistics Canada; 2018 [Available at: https://www150.statcan.gc.ca/n1/pub/84-537-x/84-537-x2018002-eng.htm; cited March 2019].

Page 10
TABLE 2

Indicator: Number of New Cancer Cases
Definition: Annual number of new cancer cases (invasive cases, all ages, excludes non-melanoma skin cancers as per standard national and international protocols). This number is used by healthcare planners as it estimates direct need for cancer services in a population and associated resource needs.
Timeframe: January 1 - December 31, 1996 and January 1 - December 31, 2016.
Additional Notes: Stratified by type of cancer (lung, colorectal, female breast, and prostate). Percentage point change is reflected in red for negative change of more than 10% (i.e., 10% or more increase in new cancer cases) or green for positive change of more than 10% (i.e., 10% or more decrease in new cancer cases).
Data Source: Manitoba Cancer Registry.

Indicator: Crude Cancer Rate
Definition: Annual incident cancer rate per 100,000 people (all ages). This indicator represents the actual cancer incidence rate. This helps planners describe the frequency of disease in a population. Although it does not allow for comparisons between rates from different populations it can help in resource planning and allocation.
Numerator: All patients diagnosed with invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: All Manitoba residents, from Manitoba Health's population database.
Timeframe: January 1 - December 31, 1996 and January 1 - December 31, 2016.
Additional Notes: Stratified by type of cancer (lung, colorectal, female breast, and prostate). Percentage point change is reflected in red for negative change of more than 10% (i.e., 10% or more increase in crude incidence rate) or green for positive change of more than 10% (i.e., 10% or more decrease in crude incidence rate).
Data Source: Manitoba Cancer Registry, Manitoba Health Seniors and Active Living population registry (for denominator).

Indicator: Age-Standardized Incidence Rate
Definition: Annual age-standardized cancer incidence rate per 100,000 people. Allows the reader to compare cancer incidence rates between regions with different age structures (the rates are "adjusted" or "standardized" so that age differences are taken into account). This is done because age is closely associated with cancer incidence. By removing the effect of age we can make more representative comparisons between populations.
Numerator: All patients diagnosed with invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: All Manitoba residents, from

Manitoba Health's population database.
Timeframe: January 1 - December 31, 1996 and January 1 - December 31, 2016.
Additional Notes: Stratified by type of cancer (lung, colorectal, female breast, and prostate). Rates are age-standardized (using the direct method) to the 2011 Manitoba population. Percentage point change is reflected in red for negative change of more than 10% (i.e., 10% or more increase in age-standardized incidence rate) or green for positive change of more than 10% (i.e., 10% or more decrease in age-standardized incidence rate).
Data Source: Manitoba Cancer Registry, Manitoba Health Seniors and Active Living population registry (for denominator).

Indicator: Number of Cancer Deaths
Definition: Annual number of deaths due to invasive cancer (all ages, excluding non-melanoma skin cancers as per standard national and international protocols). This number is used by healthcare planners as it estimates direct need for cancer services in a population and associated resource allocation.
Timeframe: January 1 - December 31, 1996 and January 1 - December 31, 2016.
Additional Notes: Stratified by type of cancer (lung, colorectal, female breast, and prostate). Percentage point change is reflected in red for negative change of more than 10% (i.e., 10% or more increase in cancer-related deaths) or green for positive change of more than 10% (i.e., 10% or more decrease in cancer-related deaths).
Data Source: Manitoba Vital Statistics Death database.

Indicator: Crude Mortality Rate
Definition: Annual cancer mortality rate per 100,000 people. This indicator represents the actual cancer mortality rate. This helps planners describe the burden of disease in a population. Although it does not allow for comparisons between rates from different populations it can help in resource planning and allocation.
Numerator: All patients dying of invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: All Manitoba residents, from Manitoba Health Seniors and Active Living population database.
Timeframe: January 1 - December 31, 1996 and January 1 - December 31, 2016.
Additional Notes: Stratified by type of cancer (lung, colorectal, female breast, and prostate). Percentage point change is reflected in red for negative change of more than 10% (i.e., 10% or more increase in crude mortality rate) or green for positive change of more than 10% (i.e., 10% or more decrease in crude mortality rate).
Data Source: Manitoba Vital Statistics Death database, Manitoba Health Seniors and Active Living population registry (for denominator).

Indicator: Age-Standardized Mortality Rate
Definition: Annual age-standardized cancer mortality rate per 100,000 people. Allows the reader to compare cancer mortality rates between regions with different age structures (the rates are "adjusted" or "standardized" so that age differences are taken into account). This is done because age is closely associated with cancer mortality. By removing the effect of age we can make more representative comparisons between populations.
Numerator: All patients dying of invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: All Manitoba residents, from Manitoba Health Seniors and Active Living population database.
Timeframe: January 1 - December 31, 1996 and January 1 - December 31, 2016.
Additional Notes: Stratified by type of cancer (lung, colorectal, female breast, and prostate). Rates are age-standardized (using the direct method) to the 2011 Manitoba population. Percentage point change is reflected in red for negative change of more than 10% (i.e., 10% or more increase in age-standardized mortality rate) or green for positive change of more than 10% (i.e., 10% or more decrease in age-standardized mortality rate).
Data Source: Manitoba Vital Statistics Death database, Manitoba Health Seniors and Active Living population registry (for denominator).

Page 11
FIGURE 1
Indicator: Number of New Cancer Cases and Projected Estimates
Definition: Annual number of new cancer cases (incident cases; all ages). This number is used by healthcare planners as it estimates direct need for cancer services in a population and associated resource needs.
Timeframe: January 1, 1988 - December 31, 2012 (observed); 2013-2035 (projected).
Additional Notes: Case counts followed the Surveillance, Epidemiology, and End Results (SEER) multiple primary and histology coding rules (https://seer.cancer.gov/tools/mphrules/). The projected numbers of new cases were estimated using the CanProj Package [Qiu Z, Hatcher J, Team C-PW. Canproj - The *R* package of cancer projection methods based on generalized linear models for age, period, and/or cohort. Alberta Health Services: Technique Report for Cancer Projections Network (C-Proj) Alberta, 2011].
Data Source: Manitoba Cancer Registry.

Indicator: Age-Standardized Incidence Rate and Projected Estimates
Definition: Annual age-standardized cancer incidence rate per 100,000 people (all ages). Allows the reader to compare cancer incidence rates between regions with different age structures (the rates are "adjusted" or "standardized" so that age differences are taken into account). This is done because age is closely associated with cancer incidence. By removing the effect of age we can make more representative comparisons between populations.
Numerator: All patients diagnosed with invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: All Manitoba residents, from Manitoba Health Seniors and Active Living population database.
Timeframe: January 1, 1988 - December 31, 2012 (observed); 2013-2035 (projected).
Additional Notes: Rates are age-standardized (using the direct standardization method) to the 2011 Manitoba population. The projected numbers of new cases were estimated using the CanProj Package [Qiu Z, Hatcher J, Team C-PW. Canproj - The *R* package of cancer projection methods based on generalized linear models for age, period, and/or cohort. Alberta Health Services: Technique Report for Cancer Projections Network (C-Proj) Alberta, 2011] developed with funding from the Canadian Partnership Against Cancer (CPAC). This *R* package estimates the projected number of cases and incidence rates from a variety of different model that include and exclude age, period, cohort, drift and potential overdispersion effects before recommending a best fitting model. The models use incident counts together with observed and projected populations to generate the projected counts and rates.
Data Source: Manitoba Cancer Registry, Manitoba Health Seniors and Active Living population registry (for denominator).

Page 12
FIGURE 2
Indicator: Number of New Cancer Cases and Projected Estimates
Definition: Annual number of new cancer cases (incident cases; all ages). This number is used by healthcare planners as it estimates direct need for cancer services in a population and associated resource needs.
Timeframe: January 1 - December 31, 2016 (observed); January 1 - December 31, 2035 (projected).
Additional Notes: Stratified by sex (male/female) and Regional Health Authorities (Winnipeg Regional Health Authority, Prairie Mountain Health, Interlake-Eastern Regional Health Authority, Northern Regional Health Authority, and Southern Health - Santé Sud). Case counts followed the Surveillance, Epidemiology, and End Results (SEER) multiple primary and histology coding rules (https://seer.cancer.gov/tools/mphrules/). The projected numbers of new cases were estimated using the CanProj Package [Qiu Z, Hatcher J, Team C-PW. Canproj - The *R* package of cancer projection methods based on generalized linear models for age, period, and/or cohort. Alberta Health Services: Technique Report for Cancer Projections Network (C-Proj) Alberta, 2011] developed with funding from the Canadian Partnership Against Cancer (CPAC). This *R* package estimates the projected number of cases and incidence rates from a variety of different model that include and exclude age, period, cohort, drift and potential overdispersion effects before recommending a best fitting model. The models use incident counts together with observed and projected populations to generate the projected counts and rates.
Data Source: Manitoba Cancer Registry.

Page 13
FIGURE 3A
Indicator: Cost of Surgical Treatment per Patient
Definition: Mean surgical treatment cost per patient one year after diagnosis.
Timeframe: January 1, 2004 - December 31, 2012.
Additional Notes: Stratified by year and cancer site (breast, prostate, colorectal). All costs in 2015 Canadian dollars ($CAD). Data reflect treatment utilization and cost only. Often the first year after cancer diagnosis is a period of intensive treatment

and high cost. This analysis does not show the cost per patient for those who died within the first year of diagnosis and therefore may underestimate to true cost of care. Caution is recommended when interpreting these figures.
Data Source: Manitoba Cancer Registry; Manitoba Health Seniors and Active Living medical claims, hospital discharge databases, and population registry; As part of a national study funded through the Canadian Institutes of Health Research (Principal Investigator: Claire de Oliveira).

FIGURE 3B
Indicator: Cost of Systemic Treatment per Patient
Definition: Mean systemic treatment cost per patient one year after diagnosis.
Timeframe: January 1, 2004 - December 31, 2012.
Additional Notes: Stratified by year and cancer site (breast, prostate, colorectal). All costs in 2015 Canadian dollars ($CAD). Data reflect treatment utilization and cost only. Often the first year after cancer diagnosis is a period of intensive treatment and high cost. This analysis does not show the cost per patient for those who died within the first year of diagnosis and therefore may underestimate to true cost of care. Caution is recommended when interpreting these figures.
Data Source: Manitoba Cancer Registry; Manitoba Health Seniors and Active Living medical claims, hospital discharge databases, and population registry; As part of a national study funded through the Canadian Institutes of Health Research (Principal Investigator: Claire de Oliveira).

FIGURE 3C
Indicator: Cost of Radiation Treatment per Patient
Definition: Mean radiation treatment cost per patient one year after diagnosis.
Timeframe: January 1, 2004 - December 31, 2012.
Additional Notes: Stratified by year and cancer site (breast, prostate, colorectal). All costs in 2015 Canadian dollars ($CAD). Data reflect treatment utilization and cost only. Often the first year after cancer diagnosis is a period of intensive treatment and high cost. This analysis does not show the cost per patient for those who died within the first year of diagnosis and therefore may underestimate to true cost of care. Caution is recommended when interpreting these figures. Unit cost of radiation therapy is based on a dated estimate and may underestimate the true cost of radiation treatment per patient.
Data Source: Manitoba Cancer Registry; Manitoba Health Seniors and Active Living medical claims, hospital discharge databases, and population registry; As part of a national study funded through the Canadian Institutes of Health Research (Principal Investigator: Claire de Oliveira).

PREVENTION

Page 15 and 16
TABLE 3, FIGURE 4
Indicator: Obesity
Definition: The percent of adults (ages 18+) with Body Mass Index (BMI) classified as "obese" (30+). Based on self-reported height and weight. BMI is a common (and international standard) measure used to determine if an individual's weight is in a healthy range based on their height. BMI = (weight in kilograms) / (height in metres). The index is: under 18.5 (underweight), 18.5-24.9 (acceptable weight), 25-29.9 (overweight) 30-34.9 (obese-class I), 35.0-39.9 (obese-class II), and 40.0 or higher (obese class III).
Numerator: Number of adults who are obese based on self-reported height and weight responses in survey data.
Denominator: Total number of adults with valid height and weight responses in the survey, ages 18 and over excluding pregnant women and people less than 0.91 metres tall or greater than 2.11 metres.
Timeframe: January 1, 2009 - December 31, 2014 (past) and January 1, 2015 - December 31, 2016 (current).
Additional Notes: Stratified by region (Figure 4, Page 16). Crude rate of obesity (not age-standardized) is shown using standard Statistics Canada calculation methods. Trend arrow is based on a percentage point change of + or - 10% with colors indicating whether the trend is negative (red), positive (green), or neutral (yellow). In 2015 the survey underwent substantial redesign which included changes to questionnaire and methodology. Past estimates have been grouped together (2009-2014) in order to support the greatest amount of disaggregation after implementation of a new collection strategy, application of a sample from two different frames, and major content revisions.
Data Source: Statistics Canada, Canadian Community Health Survey, data compiled by Manitoba Health Seniors, and Active Living.

Indicator: Smoking
Definition: The percent of teens and adults (age 12 and older) who are current daily or occasional cigarette smokers. Based on self-reported current smoking habits.
Numerator: Number of current daily or occasional smokers, ages 12 and older, based on survey data.
Denominator: Total number of survey participants ages 12 and older.
Timeframe: January 1, 2009 - December 31, 2014 (past) and January 1, 2015 - December 31, 2016 (current).
Additional Notes: Stratified by region (Figure 4, Page 16). Crude rate of smoking (not age-standardized) is shown using standard Statistics Canada calculation methods. Trend arrow is based on a percentage point change of + or - 10% with colors indicating whether the trend is negative (red), positive (green), or neutral (yellow). In 2015 the survey underwent substantial redesign which included changes to questionnaire and methodology. Past estimates have been grouped together (2009-2014) in order to support the greatest amount of disaggregation after implementation of a new collection strategy, application of a sample from two different frames, and major content revisions. The past rate reflects classification of current, daily, or occasional cigarette smokers based on self-reported current smoking habits. The current rate reflects classification as current smoker based on self-reported current smoking habits. This change in classification was part of the survey redesign in 2015. Here we report it as current smokers for messaging, but we recommend caution when comparing the past and current rates.
Data Source: Statistics Canada, Canadian Community Health Survey, data compiled by Manitoba Health Seniors and Active Living.

Indicator: Alcohol Use
Definition: The percent of teens and adults (ages 12 and older) who consume five or more alcoholic drinks on one occasion, at least once per month in the past year. Standard "binge-drinking" measure based on self-reported drinking habits.
Numerator: Number of individuals consuming five or more drinks on one occasion, at least once a month in the past year, ages 12 and older, based on survey data.
Denominator: Total number of survey participants, ages 12 and older, including non-drinkers.
Timeframe: January 1, 2009 - December 31, 2014 (past) and January 1, 2015 - December 31, 2016 (current).
Additional Notes: Stratified by region (Figure 4, Page 16). Crude rate of alcohol use (not age-standardized) is shown using standard Statistics Canada calculation methods. Trend arrow is based on a percentage point change of + or - 10% with colors indicating whether the trend is negative (red), positive (green), or neutral (yellow). In 2015 the survey underwent substantial redesign which included changes to questionnaire and methodology. Past estimates have been grouped together (2009-2014) in order to support the greatest amount of disaggregation after implementation of a new collection strategy, application of a sample from two different frames, and major content revisions.
Data Source: Statistics Canada, Canadian Community Health Survey, data compiled by Manitoba Health Seniors and Active Living.

Indicator: Fruit and Vegetable Consumption
Definition: The percent of teens and adults who consume fruits and vegetables at least five times per day. Based on self-reported dietary habits.
Numerator: Number of individuals consuming vegetables and fruit at least five times per day, ages 12 and older, based on survey data.
Denominator: Total survey participants, ages 12 and older.
Timeframe: January 1, 2009 - December 31, 2014 (past) and January 1, 2015 - December 31, 2016 (current).
Additional Notes: Stratified by region (Figure 4, Page 16). Crude rate of fruit and vegetable consumption (not age-standardized) is shown as per standard Statistics Canada calculation methods. Trend arrow is based on a percentage point change of + or - 10% with colors indicating whether the trend is negative (red), positive (green), or neutral (yellow). In 2015 the survey underwent substantial redesign which included changes to questionnaire and methodology. Past estimates have been grouped together (2009-2014) in order to support the greatest amount of disaggregation after implementation of a new collection strategy, application of a sample from two different frames, and major content revisions.
Data Source: Statistics Canada, Canadian Community Health Survey, data compiled by Manitoba Health Seniors and Active Living.

Indicator: Physical Activity

Definition: The percent of teens and adults with moderate or active levels of physical activity (based on the nature frequency and duration of their participation in leisure time activity). Based on self-reported activity levels in the past three months.
Numerator: Number of survey respondents reporting moderate or active physical activity time during leisure time, ages 12 and older.
Denominator: Population (12 year of age or older) who reported a level of physical activity during leisure time.
Timeframe: January 1, 2009 - December 31, 2014 (past) and January 1, 2015 - December 31, 2016 (current).
Additional Notes: Stratified by region (Figure 4, Page 16). Crude rate of physical activity (not age-standardized) is shown as per standard Statistics Canada calculation methods. In 2015 the survey underwent substantial redesign which included changes to questionnaire and methodology. The question on physical activity was changed during redesign resulting in data which cannot be directly compared between timeframes. For the 2015/16 data: This derived variable represents an alternate classification of physical activity for adults, based on the number of minutes of moderate to vigorous activity done in a week. The previous question (2009-2014) was based on a variable which categorized respondents as being "active", "moderately active", or "inactive" in their transportation and leisure time based on the total daily energy expenditure values (kcal/kg/day) calculated for total daily energy expenditure. The questions used to derive this indicator begin with the statement: "Have you done any of the following in the past 3 months?" For these reasons past and current cannot be compared – only current data have been included here.
Data Source: Statistics Canada, Canadian Community Health Survey, data compiled by Manitoba Health, Seniors and Active Living.

Indicator: HPV Vaccination

Definition: The percent of Grade 6 girls who completed the full HPV vaccination (2 or 3 doses) as part of Manitoba's school-based vaccination program.
Numerator: The number of eligible Manitoban girls in the specified birth cohort who received two or three valid doses for HPV vaccination.
Denominator: Total number of eligible Manitoban girls in the specified birth cohort.
Timeframe: January 1, 2009 - December 31, 2015 (1998 birth cohort) and January 1, 2010 - December 31, 2016 (1999 birth cohort).
Additional Notes: Trend arrow is based on a percentage point change of + or - 10% with colors indicating whether the trend is negative (red), positive (green), or neutral (yellow).
Data Source: Manitoba Health Seniors and Active Living. Comparison between provinces is difficult due to variation in data quality and collection of uptake rates. Important to note, Manitoba has a once eligible, always eligible policy that allows those who miss the school vaccination program to still get immunized.

CCMB SCREENING PROGRAMS

Page 20

FIGURE 5

Indicator: Breast Cancer Screening Rates (All Mammograms)

Definition: The percent of Manitoban women 50-74 years of age who had a mammogram (screening or diagnostic) over a two year period.
Numerator: Number of women ages 50-74 with a diagnostic or screening mammogram over a two year period.
Denominator: All Manitoban women ages 50-74 (excludes those with previous diagnosis of breast cancer).
Timeframe: January 1, 2016 - December 31, 2017.
Additional Notes: Stratified by region. Two forms of this indicator are available, consistent with national reporting, demonstrating mammography utilization overall as well as the proportion delivered through organized programs. Significantly different from Manitoba rate ($p < 0.05$).
Data Source: BreastCheck Registry; Manitoba Health Seniors and Active Living Medical Claims data and Manitoba Health Population Registry.

FIGURE 6

Indicator: Cervical Cancer Screening Rates

Definition: The percent of women ages 21-69, who had a Papanicolaou (Pap) test over a three year period.
Numerator: Number of women ages 21-69 with a Pap test over a three year period.
Denominator: All women ages 21-69 in the CervixCheck registry (excludes those with previous diagnosis of cervical cancer and hysterectomy).
Timeframe: January 1, 2015 - December 31, 2017.
Additional Notes: Stratified by region. This is a 36 month screening rate. Cervical cancer screening rates are often reported over 42 months to allow time for appointment booking and wait time. Significantly different from Manitoba rate ($p < 0.05$).
Data Source: CervixCheck Registry.

FIGURE 7

Indicator: Colon Cancer Screening Rates

Definition: The percent of the population ages 50-74 who are up-to-date on colon cancer screening. Up-to-date describes individuals 50-74 years of age who completed a fecal test in the last two years, or a colonoscopy or flexible sigmoidoscopy in the last five years.
Numerator: The number of individuals ages 50-74 who completed a fecal test in the last two years, or a colonoscopy or flexible sigmoidoscopy within the last five years.
Denominator: All Manitobans 50-74 years of age (excludes those with previous diagnosis of colorectal cancer).
Timeframe: January 1, 2016 - December 31, 2017.
Additional Notes: Stratified by region. Significantly different from Manitoba rate ($p < 0.05$). Fecal test completed between January 1, 2016 and December 31, 2017 and/or a colonoscopy/flexible sigmoidoscopy completed between January 1, 2013 and December 31, 2017. A fecal test may include a fecal occult blood test (FOBT) or fecal immunochemical test (FIT).
Data Source: ColonCheck Registry; Shared Health; Manitoba Health Seniors and Active Living Medical Claims data and Manitoba Health Population Registry.

Page 21

FIGURE 8

Indicator: Breast Cancer Screening (Proportion of Mammograms Delivered through an Organized Screening Program)

Definition: The percent of Manitoban women 50-74 years of age who had a mammogram (screening or diagnostic) over a two year period, by location of service.
Numerator: Number of women ages 50-74 with a diagnostic or screening mammogram, over a two year period, who had a mammogram at BreastCheck, outside BreastCheck, or no mammogram.
Denominator: All Manitoban women ages 50-74.
Timeframe: January 1, 2016 - December 31, 2017.
Additional Notes: Stratified by location/type of mammogram. This indicator demonstrates mammography utilization by the proportion delivered through organized programs.
Data Source: BreastCheck Registry, Manitoba Health Seniors and Active Living Medical Claims data and Manitoba Health Population Registry.

Page 22

FIGURE 9

Indicator: Cervical Cancer Screening Abnormal Results

Definition: The percent of Manitoban women (21-69 years of age) who had an abnormal Pap test result (low-grade and high-grade results).
Numerator: Number of women (21-69 years of age) who had an abnormal Pap test result over a three year period.
Denominator: All women ages 21-69 in the CervixCheck registry who had a Pap test.
Timeframe: January 1, 2015 - December 31, 2017.
Data Source: CervixCheck Registry.

FIGURE 10

Indicator: Cervical Cancer by Time since Last Pap Test

Definition: The percent of Manitobans (20-69 years of age) diagnosed with an invasive cervical cancer (squamous cell carcinoma or adenocarcinoma of the cervix) by time since last Pap test (0.5 to 3 years; 3-5 years; > 5 years or never).
Numerator: Number of women (25-69 years of age) diagnosed with an invasive cervical cancer by time since last Pap test (0.5 to 3 years; 3-5 years; > 5 years or never).
Denominator: All women (25-69 years of age) diagnosed with an invasive cervical cancer.
Timeframe: January 1, 2014- December 31, 2016.
Additional Notes: The category for > 5 years or never includes Manitobans who had their last Pap test more than 5 years ago, never had a Pap test, or had a Pap test 6 months or less before their diagnosis date (indicative of a diagnostic test and not a screening test).
Data Source: CervixCheck Registry.

Page 23
FIGURE 11
Indicator: ColonCheck Invitations
Definition: The number of colon cancer screening invitations mailed to Manitobans as part of the ColonCheck Screening program.
Timeframe: January 1, 2015 - December 31, 2016.
Data Source: ColonCheck Registry.

Indicator: Fecal Testing Uptake
Definition: The number of Manitobans (50-74 years of age) who completed a fecal test.
Timeframe: January 1, 2015 - December 31, 2016.
Additional Notes: Fecal test completed through ColonCheck Screening program. A fecal test may include a fecal occult blood test (FOBT) or fecal immunochemical test (FIT).
Data Source: ColonCheck Registry; Manitoba Health Senior and Active Living Medical Claims data.

Indicator: Fecal Testing Results
Definition: The number of Manitobans (50-74 years of age) who had a fecal test result that was positive, negative, or indeterminate.
Timeframe: January 1, 2015 - December 31, 2016.
Additional Notes: A fecal test may include a fecal occult blood test (FOBT) or fecal immunochemical test (FIT).
Data Source: ColonCheck Registry.

Indicator: Colonoscopy Uptake
Definition: The number of Manitobans (50-74 years of age) with a positive fecal test result who had a subsequent colonoscopy completed.
Timeframe: Fecal test between January 1, 2015 - December 31, 2016.
Additional Notes: A fecal test may include a fecal occult blood test (FOBT) or fecal immunochemical test (FIT).
Data Source: ColonCheck Registry.

Indicator: Colonoscopy Results
Definition: The number of Manitobans (50-74 years of age) who had a colonoscopy after a positive fecal test where a final diagnosis was available.
Timeframe: Fecal test between January 1, 2015 - December 31, 2016.
Additional Notes: Stratified by diagnosis (colorectal cancer, advanced adenoma, other adenoma, other causes of positive FOBT, other, or normal result). These data include all cancer diagnoses as of April 11, 2019.
Data Source: ColonCheck Registry.

DETECTING CANCER

Page 25
TABLE 4
Indicator: Number of New Cancer Cases
Definition: Annual number of new cancer cases (invasive cases, all ages, excludes non-melanoma skin cancers as per standard national and international protocols). This number is used by healthcare planners as it estimates direct need for cancer services in a population and associated resource needs.
Timeframe: January 1 - December 31, 2016.
Additional Notes: Stratified by cancer diagnosis (15 most common cancer diagnoses).
Data Source: Manitoba Cancer Registry.

Indicator: Age-Standardized Incidence Rate
Definition: Annual age-standardized cancer incidence rate per 100,000 people (all ages). Allows the reader to compare cancer incidence rates between regions with different age structures (the rates are "adjusted" or "standardized" so that age differences are taken into account). This is done because age is closely associated with cancer incidence. By removing the effect of age we can make more representative comparisons between populations.
Numerator: All patients diagnosed with invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: All Manitoba residents, from Manitoba Health's population database.
Timeframe: January 1 - December 31, 2016.
Additional Notes: Stratified by cancer diagnosis (15 most common cancer diagnoses). Rates are age-standardized (using the direct standardization method) to the 2011 Manitoba population.
Data Source: Manitoba Cancer Registry; Manitoba Health, Seniors and Active Living population registry (for denominator).

FIGURE 12
Indicator: Number of New Cancer Cases by Cancer Type and Sex
Definition: Proportion of new cancer cases (invasive cases, all ages, excludes non-melanoma skin cancers as per standard national and international protocols) by cancer type and sex.
Numerator: The number of new cancer cases diagnosed for each cancer type in males and females.
Denominator: The total number of invasive cancer cases diagnosed in males and females.
Timeframe: January 1 - December 31, 2016.
Additional Notes: Stratified by sex (male/female) and cancer type.
Data Source: Manitoba Cancer Registry.

Page 26
FIGURE 13
Indicator: Number of New Pediatric Cancer Cases
Definition: The number of new pediatric cancer cases (16 years and younger) over time.
Timeframe: January 1, 2006 - December 31, 2016.
Additional Notes: Stratified by sex (male/female).
Data Source: Manitoba Cancer Registry.

TABLE 5
Indicator: Proportion of New Pediatric Cancer Cases by Type of Cancer
Definition: The proportion of new pediatric cancer cases (16 years and younger) for each type of cancer.
Numerator: The number of pediatric cancer cases for each type of cancer.
Denominator: All Manitoba pediatric cancer cases (16 years of age or younger).
Timeframe: January 1, 2014 - December 31, 2016.
Additional Notes: Stratified by type of cancer based on the International Classification of Childhood Cancers.
Data Source: Manitoba Cancer Registry.

FIGURE 14
Indicator: Number of New Pediatric Cancer Cases by Age Category
Definition: The percent of new pediatric cancer cases (16 years of age of younger) by age group.
Numerator: The number of pediatric cancer cases within each age group (less than 1 year, 1-4 years, 5-9 years, 10-14 years, 15-16 years).
Denominator: All Manitoba pediatric cancer cases (16 years of age or younger).
Timeframe: January 1, 2014 - December 31, 2016.
Additional Notes: Stratified by age group (less than 1 year, 1-4 years, 5-9 years, 10-14 years, and 15-16 years).
Data Source: Manitoba Cancer Registry.

Page 27
TABLE 6
Indicator: Proportion of New Cancer Cases in Adolescents and Young Adults (AYA) by Type of Cancer
Definition: The proportion of new AYA cancer cases (ages 15-29 and 30-39, respectively) for each type of cancer.
Numerator: The number of AYA cancer cases for each type of cancer (ages 15-29 and 30-39, respectively).
Denominator: All Manitoba AYA cancer cases (ages 15-29 and 30-39, respectively).
Timeframe: January 1 - December 31, 2016.
Additional Notes: Stratified by AYA age category (15-29 and 30-39) and cancer type. Suppression of 5 or fewer cases in AYA ages 15-29 and 10 or fewer cases in AYA ages 30-39.
Data Source: Manitoba Cancer Registry.

TABLE 7
Indicator: Three Pillars of CancerCare Manitoba's Strategy for Adolescents and Young Adults (AYA).
Definition: A) Psychosocial, Education, and Vocational Support: The number of referrals made to the AYA Psychosocial Program. B) Oncofertility Preservation: Referral data are currently unavailable. C) Clinical Trial Accrual: The number of clinical trials open at CancerCare Manitoba eligible to AYA patients.
Numerator: A) Psychosocial, Education, and Vocational Support: The number of referrals made to the AYA Psychosocial Program. C) Clinical Trial Accrual: The number of clinical trials open at CancerCare Manitoba eligible to AYA patients.
Timeframe: A) February 1, 2017 – January 31, 2018; B) any clinical trial open as of May 1, 2018.
Data Source: A) CancerCare Manitoba Patient and Family Support Services; C) CancerCare Manitoba Clinical Trials Unit.

Page 28
FIGURE 15
Indicator: Referrals for Blood Disorders
Definition: The number of hematology referrals received by CancerCare Manitoba's Provincial Cancer Referral and Navigation Service.
Timeframe: August 1, 2009 - December 31, 2017.
Data Source: CancerCare Manitoba Provincial Cancer Referral and Navigation Service.

Page 29
FIGURE 16
Indicator: Incidence: Late-Stage Diagnoses
Definition: Percent of invasive cancer cases diagnosed at each stage of disease (stages I-IV, and unknown).
Numerator: The number of cancer cases identified for each stage of disease (stages I-IV, and unknown).
Denominator: All patients diagnosed with invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Timeframe: January 1, 2014 - December 31, 2016.
Additional Notes: Stratified by type of cancer. Cancer diagnoses with more than 40 cases in 2016 are shown. In keeping with international coding conventions all invasive brain tumours, multiple myeloma, and leukemia are considered unstageable using the collaborative staging system utilized by all population-based North American Cancer Registries. Multiple myeloma, chronic lymphocytic leukemia, brain, and acute myeloid leukemia are unstageable according to staging guidelines and therefore excluded. Testis cancer is excluded as it does not have stage IV diagnoses. In addition, the diagnoses "other digestive system" and "other female genital system" were excluded.
Data Source: Manitoba Cancer Registry.

Page 30
FIGURES 17 and 18
Indicator: Incidence: Late-Stage Diagnosis by Region
Definition: Percent of invasive cancer cases diagnosed with late stage (IV), indicating advanced cancer with distant spread (metastases) at diagnosis.
Numerator: The number of patients diagnosed with stage IV cancer.
Denominator: All patients diagnosed with invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Timeframe: January 1, 2014- December 31, 2016.
Additional Notes: Stratified by region and type of cancer (breast, lung and bronchus, colorectal, prostate). Data for other Canadian provinces come from the Canadian Partnership Against Cancer (timeframe January 1, 2011 - December 31, 2015). Stage has been captured by the Manitoba Cancer Registry for all patients diagnosed since 2004. Stage IV cancers have the poorest prognosis (chance of survival): the disease is wide spread and treatment is least effective. The level of this indicator varies by specific cancer diagnosis. Existence and availability of technology to detect cancer early, uptake of effective cancer screening, and rapid response (by patients and the health care system) to symptoms may reduce the proportion of patients who are diagnosed with stage IV cancer.
Data Source: Manitoba Cancer Registry; Canadian Partnership Against Cancer.

WAIT TIMES

Page 32
TABLE 8, FIGURE 19
Indicator: Breast Cancer Screening Wait Times
Definition: Median wait time (in days) for women ages 50-74 from an abnormal mammogram screening result to final diagnosis, for BreastCheck participants.
Population: Women 50-74 years of age who participated in the BreastCheck Breast Cancer Screening Program with an abnormal screening result.
Timeframe: January 1, 2014 - December 31, 2015 (past) and January 1, 2016 - December 31, 2017 (current).
Additional Notes: Stratified by region.
Data Source: BreastCheck Registry.

Indicator: Colon Cancer Screening Wait Times
Definition: Median wait time (in days) for Manitobans ages 50-74 from an abnormal fecal screening result to colonoscopy.
Population: Manitobans 50-74 years of age who completed a ColonCheck fecal screening test with an abnormal screening result.
Timeframe: January 1, 2013 - December 31, 2014 (past) and January 1, 2015 - December 31, 2016 (current).
Additional Notes: Stratified by region. A fecal test may include a fecal occult blood test (FOBT) or fecal immunochemical test (FIT).
Data Source: ColonCheck Registry.

Page 33
FIGURE 20
Indicator: Diagnostic Imaging Wait Times
Definition: Median and 90th percentile diagnostic imaging wait time (in days) between the date the requisition for diagnostic imaging was received and the date a result was reported.
Population: Manitobans over the age of 18 who have been sent for diagnostic imaging due to a suspicion of cancer.
Timeframe: January 1 - December 31, 2016 (past); January 1 - December 31, 2017 (current).
Additional Notes: Data also show the number of patients included in each timeframe. Stratified by type of cancer (prostate, lymphoma, lung, and colon/rectum). Wait time is calculated as the number of days between the date the requisition for diagnostic imaging was received and the date a result was reported. This indicator was originally defined by the Cancer Patient Journey Initiative. Wait time data for breast cancer diagnostic mammograms from private clinics are not available. Data shown is provincial with the exception of Brandon, which is excluded.
Data Source: Winnipeg Regional Health Authority Diagnostic Imaging Program; CancerCare Manitoba System Performance.

Page 34
FIGURE 21
Indicator: Pathology Wait Times
Definition: Median and 90th percentile pathology wait time (in days) between the the date of specimen collection and the date the result was reported by pathologist.
Population: Manitobans over the age of 18 who have been sent for pathology due to a suspicion of cancer.
Timeframe: January 1 - December 31, 2016 (past); January 1 - December 31, 2017 (current).
Additional Notes: Data also show the number of patients included in each timeframe. Stratified by type of cancer [prostate, lymphoma, lung, breast, and colon/rectum (urgent and regular)]. Wait time is calculated as the number of days the date of specimen collection and the date the result was reported by pathologist. This indicator was originally defined by the Cancer Patient Journey Initiative.
Data Source: Shared Health; CancerCare Manitoba System Performance

Page 35
FIGURE 22
Indicator: Referral to Medical Oncologist Wait Times
Definition: Median and 90th percentile wait time (in days) between a referral to CancerCare Manitoba to their first consultation with a medical oncologist.
Population: Manitobans over the age of 18 who have been referred to CancerCare Manitoba.
Timeframe: January 1 - December 31, 2016 (past); January 1 - December 31, 2017 (current).
Additional Notes: Data also show the number of patients included in each timeframe. Stratified by type of cancer (breast and gastrointestinal). Wait time is calculated as the number of days between a referral to CancerCare Manitoba to their first consultation with a medical oncologist. Data exclude delays caused by factors outside the control of CancerCare Manitoba, including delays due to missing documentation, medical delays (e.g., cancer diagnosis confirmation, lab and imaging test results, surgery and recovery time, etc.) or personal decisions to wait (e.g., travel or timing).
Data Source: CancerCare Manitoba's Provincial Cancer Referral and Navigation Service and System Performance.

Page 36
FIGURE 23
Indicator: Intravenous (IV) Chemotherapy Wait Times
Definition: Median and 90th percentile wait time (in days) between a patient consult with a medical oncologist and the first IV chemotherapy treatment.
Population: CancerCare Manitoba patients (over the age of 18) who underwent IV chemotherapy.
Timeframe: January 1 - December 31, 2016 (past); January 1 - December 31, 2017 (current).
Additional Notes: Data also show the number of patients included in each timeframe. Stratified by type of cancer (breast, lymphoma, lung, gynecologic, genitourinary, gastrointestinal, other). Wait time is calculated as the number of days between a patient consult with a medical oncologist and the first chemotherapy treatment.
Data Source: CancerCare Manitoba's Provincial Cancer Referral and Navigation Service, Electronic Medical Record (ARIA), and System Performance.

Page 37
FIGURE 24
Indicator: Wait Times, Radiation Treatment
Definition: Median and 90th percentile wait time (in days) between a patient being identified as ready-to-treat by the radiation oncologist and the first radiation therapy treatment.
Population: CancerCare Manitoba patients (over the age of 18) where the patient has been identified as ready-to-treat
Timeframe: January 1 - December 31, 2016 (past); January 1 - December 31, 2017 (current).
Additional Notes: Data also show the number of patients included in each timeframe. Stratified by type of cancer (breast, bone metastases, bowel, gynecologic, head and neck, lung, prostate, other). Wait time is calculated as the number of days between a patient being identified as ready-to-treat by the radiation oncologist and the first radiation therapy treatment.
Data Source: CancerCare Manitoba's Radiation Oncology Program and System Performance.

TREATMENT

Page 39
TABLE 9
Indicator: Surgery (Utilization)
Definition: Percent of patients treated with surgery within one year of diagnosis.
Numerator: Number of cancer patients who undergo surgery for their malignancy within one year of diagnosis.
Denominator: All patients diagnosed with invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Timeframe: January 1, 2011 - December 31, 2013 (past); January 1, 2014 - December 31, 2016 (current).
Additional Notes: Stratified by region. This indicator is useful for planning purposes but should not be used as a measure of appropriateness of treatment. Use of cancer surgery varies depending on the specific cancer diagnosis, stage of disease, the patient's medical fitness for treatment and the patient's preference. As a result of these factors, patients who do not receive surgery for their cancer may still be receiving appropriate care. Also surgery performed outside of Manitoba may not be captured in our data sources.
Data Source: Manitoba Cancer Registry.

Indicator: Radiation Therapy (Utilization)
Definition: Percent of patients treated with radiation therapy within one year of diagnosis.
Numerator: Number of cancer patients who undergo radiation therapy for their malignancy within one year of diagnosis.
Denominator: All patients diagnosed with invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Timeframe: January 1, 2011 - December 31, 2013 (past); January 1, 2014 - December 31, 2016 (current).
Additional Notes: Stratified by region. This indicator is useful for planning purposes but should not be used as a measure of appropriateness of treatment. Use of radiation therapy varies depending on the specific cancer diagnosis, stage of disease, the patient's medical fitness for treatment and the patient's preference. As a result of these factors, patients who do not receive radiation therapy for their cancer may still be receiving appropriate care. Also radiation therapy provided outside of Manitoba may not be captured in our data sources.
Data Source: Manitoba Cancer Registry.

Indicator: Systemic Therapy (Utilization)
Definition: Percent of patients treated with systemic therapy (chemotherapy or hormone therapy) within one year of diagnosis.
Numerator: Number of cancer patients who undergo systemic therapy for their malignancy within one year of diagnosis.
Denominator: All patients diagnosed with invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Timeframe: January 1, 2011 - December 31, 2013 (past); January 1, 2014 - December 31, 2016 (current).
Additional Notes: Stratified by region. This indicator is useful for planning purposes but should not be used as a measure of appropriateness of treatment. Use of systemic therapy varies depending on the specific cancer diagnosis, stage of disease, the patient's medical fitness for treatment and the patient's preference. As a result of these factors, patients who do not receive systemic therapy for their cancer may still be receiving appropriate care. Also systemic therapy provided outside of Manitoba may not be captured in our data sources; similarly, oral systemic therapy provided outside of cancer clinics (i.e., by prescription) may also not be captured in our data sources. Thus this indicator relates primarily to "intense" systemic therapy that requires cancer clinic admission.
Data Source: Manitoba Cancer Registry.

Page 40
TABLE 10
Indicator: Systemic Therapy (Utilization)
Definition: Percent of patients treated with systemic therapy (chemotherapy or hormone therapy) within one year of diagnosis.
Numerator: Number of cancer patients who underwent systemic therapy for their malignancy within one year of diagnosis.
Denominator: All patients diagnosed with invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Timeframe: January 1, 2011 - December 31, 2013 (past); January 1, 2014 - December 31, 2016 (current)
Additional Notes: Stratified by type of cancer (lung, colon (excluding rectum), breast (female only), and prostate). This indicator is useful for planning purposes but should not be used as a measure of appropriateness of treatment. Use of systemic therapy varies depending on the specific cancer diagnosis, stage of disease, the patient's medical fitness for treatment and the patient's preference. As a result of these factors, patients who do not receive systemic therapy for their cancer may still be receiving appropriate care. Also systemic therapy provided outside of Manitoba may not be captured in our data sources; similarly, oral systemic therapy provided outside of cancer clinics (i.e., by prescription) may also not be captured in our data sources. Thus this indicator relates primarily to "intense" systemic therapy that requires cancer clinic admission.
Data Source: Manitoba Cancer Registry.

Indicator: Systemic Therapy (Utilization)
Definition: Annual mean number of patients treated with systemic therapy (chemotherapy or hormone therapy) within one year of diagnosis.
Numerator: Total number of cancer patients (over a three year period) who underwent systemic therapy for their malignancy within one year of their diagnosis.
Timeframe: January 1, 2014 - December 31, 2016.
Additional Notes: Stratified by type of cancer (lung, colon (excluding rectum), breast (female only), and prostate).
Data Source: Manitoba Cancer Registry.

FIGURE 25
Indicator: Systemic Therapy (Utilization)
Definition: Percent of women diagnosed with breast cancer treated with systemic therapy (chemotherapy or hormone therapy) within one year of diagnosis.
Numerator: Number of women diagnosed with breast cancer who underwent systemic therapy for their malignancy within one year of diagnosis.
Denominator: All women diagnosed with invasive breast cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Timeframe: January 1, 2008 – December 31, 2010 (past); January 1, 2011 - December 31, 2013 (past); January 1, 2014 - December 31, 2016 (current).
Additional Notes: Breast cancer only. Stratified by region.
Data Source: Manitoba Cancer Registry.

Page 41
TABLE 11
Indicator: Radiation Therapy (Utilization)
Definition: Percent of patients treated with radiation therapy within one year of diagnosis.
Numerator: Number of cancer patients who underwent radiation therapy for their malignancy within one year of diagnosis.
Denominator: All patients diagnosed with invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Timeframe: January 1, 2011 - December 31, 2013 (past); January 1, 2014 - December 31, 2016 (current).
Additional Notes: Stratified by type of cancer [lung, rectum and rectosigmoid (excludes colon), breast (female only), prostate]. This indicator is useful for planning purposes but should not be used as a measure of appropriateness of treatment. Use of radiation therapy varies depending on specific cancer diagnosis, stage of disease, the patient's medical fitness for treatment and the patient's preference. As a result of these factors, patients who do not receive radiation therapy for their cancer may still be receiving appropriate care. Also radiation therapy provided outside of Manitoba may not be captured in our data sources.
Data Source: Manitoba Cancer Registry.

Indicator: Radiation Therapy (Utilization)
Definition: Annual mean number of patients treated with radiation therapy within one year of diagnosis.
Numerator: Total number of cancer patients (over a three year period) who underwent radiation therapy for their malignancy within one year of their diagnosis.
Timeframe: January 1, 2014 - December 31, 2016.
Additional Notes: Stratified by type of cancer (lung, rectum & rectosigmoid (excludes colon), breast (female only), prostate). This indicator is useful for planning purposes but should not be used as a measure of appropriateness of treatment. Use of radiation therapy varies depending on specific cancer diagnosis, stage of disease, the patient's medical fitness for treatment and the patient's preference. As a result of these factors, patients who do not receive radiation therapy for their cancer may still be receiving appropriate care. Also radiation therapy provided outside of Manitoba may not be captured in our data sources.
Data Source: Manitoba Cancer Registry.

FIGURE 26

Indicator: Radiation Therapy (Utilization)
Definition: Percent of women diagnosed with breast cancer treated with radiation therapy within one year of diagnosis.
Numerator: Number of women diagnosed with breast cancer who underwent radiation therapy for their malignancy within one year of diagnosis.
Denominator: All women diagnosed with invasive breast cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Timeframe: January 1, 2008 – December 31, 2010 (past); January 1, 2011 - December 31, 2013 (past); January 1, 2014 - December 31, 2016 (current).
Additional Notes: Breast cancer only. Stratified by region.
Data Source: Manitoba Cancer Registry.

FIGURE 27

Indicator: Patient Satisfaction: Managing Side Effects of Radiation Therapy
Definition: Patient satisfaction regarding whether care providers told patients how to manage side effects of radiation therapy.
Numerator: Number of survey respondents who reported 'Yes, completely", "Yes, somewhat", or "No" when asked "Did a care provider tell you how to manage any side effects of radiation therapy?"
Denominator: All respondents who provided a response to this question. Excludes respondents who identified that they didn't need an explanation on side-effects of radiation therapy.
Timeframe: July 1 - December 31, 2015.
Additional Notes: Compared to national benchmark provided by NRC Health. This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Page 42

TABLE 12

Indicator: Surgery (Utilization)
Definition: Percent of patients treated with surgery within one year of diagnosis.
Numerator: Number of cancer patients who underwent surgery for their malignancy within one year of diagnosis.
Denominator: All patients diagnosed with invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Timeframe: January 1, 2011 - December 31, 2013 (past); January 1, 2014 - December 31, 2016 (current).
Additional Notes: Stratified by type of cancer [lung, colorectal, breast (female only), and prostate]. This indicator is useful for planning purposes but should not be used as a measure of appropriateness of treatment. Use of cancer surgery varies depending on specific cancer diagnosis, stage of disease, the patient's medical fitness for treatment and the patient's preference. As a result of these factors, patients who do not receive surgery for their cancer may still be receiving appropriate care. Also surgery performed outside of Manitoba may not be captured in our data sources.
Data Source: Manitoba Cancer Registry.

Indicator: Surgery (Utilization)
Definition: Annual mean number of patients treated with surgery within one year of diagnosis.
Numerator: Total number of cancer patients (over a three year period) who underwent surgery for their malignancy within one year of diagnosis.
Timeframe: January 1, 2014 - December 31, 2016.
Additional Notes: Stratified by type of cancer [lung, colorectal, breast (female only), and prostate]. This indicator is useful for planning purposes but should not be used as a measure of appropriateness of treatment. Use of cancer surgery varies depending on specific cancer diagnosis, stage of disease, the patient's medical fitness for treatment and the patient's preference. As a result of these factors, patients who do not receive surgery for their cancer may still be receiving appropriate care. Also surgery performed outside of Manitoba may not be captured in our data sources.
Data Source: Manitoba Cancer Registry.

FIGURE 28

Indicator: Surgery (Utilization)
Definition: Percent of women diagnosed with breast cancer treated with surgery within one year of diagnosis.
Numerator: Number of women diagnosed with breast cancer who underwent surgery for their malignancy.
Denominator: All women diagnosed with invasive breast cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Timeframe: January 1, 2008 – December 31, 2010 (past); January 1, 2011 - December 31, 2013 (past); January 1, 2014 - December 31, 2016 (current).
Additional Notes: Breast cancer only. Stratified by region.
Data Source: Manitoba Cancer Registry.

Page 43

FIGURE 29

Indicator: Surgical Synoptic Reporting: Breast Cancer
Definition: Percent of patients with surgically treated breast cancer with specimen oriented for pathology.
Numerator: Number of patients with surgically treated breast cancer with specimen oriented for pathology.
Denominator: Number of patients with surgically treated breast cancer.
Timeframe: January 1 - December 31, 2017.
Additional Notes: Manitoba data are for Winnipeg sites only. Masked data from two Canadian provinces similar to Manitoba were provided with permissions. Past data are not available for comparison.
Data Source: CancerCare Manitoba Surgical Synoptic Reporting Database.

Indicator: Surgical Synoptic Reporting: Rectal Cancer
Definition: Percent of patients with surgically treated rectal cancer where location of the stoma was marked preoperatively.
Numerator: Number of patients with surgically treated rectal cancer where location of the stoma was marked preoperatively.
Denominator: All patients with surgically treated rectal cancer.
Timeframe: January 1 - December 31, 2017.
Additional Notes: Manitoba data are for Winnipeg sites only. Masked data from one other Canadian province were provided with permissions. Past data are not available for comparison.
Data Source: CancerCare Manitoba Surgical Synoptic Reporting Database.

Indicator: Surgical Synoptic Reporting: Stage II-IV Rectal Cancer
Definition: Percent of patients with surgically treated stage II, III, or IV rectal cancer who received neo-adjuvant therapy.
Numerator: Number of patients with surgically treated stage II, III, or IV rectal cancer who received neo-adjuvant therapy.
Denominator: All patients with surgically treated stage II, III, or IV rectal cancer.
Timeframe: January 1 - December 31, 2017.
Additional Notes: Manitoba data are for Winnipeg sites only. Masked data from one other Canadian province were provided with permissions. Past data are not available for comparison.
Data Source: CancerCare Manitoba Surgical Synoptic Reporting Database.

Page 44

FIGURE 30

Indicator: Surgical Indicators - Breast Cancer
Definition: Percent of invasive breast cancer cases (who did not receive neoadjuvant therapy) that underwent axillary clearance within one year of diagnosis and had no pathological evidence of nodal metastatic disease (no positive nodes).
Numerator: Number of invasive breast cancer cases (who did not receive neoadjuvant therapy) that underwent axillary clearance within one year

of diagnosis and had no pathological evidence of nodal metastatic disease (no positive nodes).
Denominator: All patients diagnosed with invasive breast cancer (who did not receive neoadjuvant therapy) who underwent axillary clearance within one year of diagnosis.
Timeframe: January 1, 2010 - December 31, 2014.
Additional Notes: Stratified by region (of residence at diagnosis). Comparison is to the 10% Scottish target.
Data Source: Manitoba Cancer Registry, Manitoba Health Seniors and Active Living medical claims, hospital discharge databases, and population registry.

Page 45
FIGURE 31
Indicator: Surgical Indicators - Colon Cancer
Definition: Percent of colon cancer cases that had a resection within one year of diagnosis and had 12 or more lymph nodes removed and pathologically examined.
Numerator: Number of colon cancer cases that had a resection within one year of diagnosis and had 12 or more lymph nodes removed and pathologically examined.
Denominator: All patients diagnosed with colon cancer who had a resection within one year of diagnosis.
Timeframe: January 1, 2010 - December 31, 2014.
Additional Notes: Stratified by stage (I-IV).
Data Source: Manitoba Cancer Registry, Manitoba Health Seniors and Active Living medical claims, hospital discharge databases, and population registry.

Page 46
FIGURE 32
Indicator: Clinical Practice Guidelines: Radiation After Breast Conserving Surgery
Definition: Percent of stage I and stage II breast cancer patients treated with radiation therapy within one year of breast conserving surgery (lumpectomy).
Numerator: Number of early stage (I/II) breast cancer patients who underwent radiation therapy within one year of breast conserving surgery.
Denominator: All patients diagnosed with early stage (I/II) breast cancer who underwent breast conserving surgery.
Timeframe: January 1, 2011 - December 31, 2013 (past); January 1, 2014 - December 31, 2016 (current).
Additional Notes: Stratified by region. Women with early stage breast cancer have a treatment choice with equivalent outcomes: mastectomy (which requires no radiation therapy), or breast conserving surgery followed by radiation therapy. However, use of radiation therapy after breast conserving surgery may or may not occur depending on specific features of the cancer, the use of other treatments such as anti-estrogens in cancer patients with very good prognosis (e.g., older age, small tumour size, very early stage), the patient's medical fitness for treatment and the patient's preference. As a result of these factors, women with early stage breast cancer who do not receive radiation therapy after breast conserving surgery may still be receiving appropriate care. Also radiation therapy provided outside of Manitoba may not be captured in our data sources.
Data Source: Manitoba Cancer Registry.

Page 47
FIGURE 33
Indicator: Clinical Practice Guidelines: Colon Resections with 12 or More Lymph Nodes Removed and Examined
Definition: Percent of colon cancer cases that had a resection within one year of diagnosis and had 12 or more lymph nodes removed and pathologically examined.
Numerator: Number of colon cancer cases that had a resection within one year of diagnosis and had 12 or more lymph nodes removed and pathologically examined.
Denominator: All patients diagnosed with colon cancer who had a resection within one year of diagnosis.
Timeframe: January 1, 2008 - December 31, 2010 (past); January 1, 2011 - December 31, 2013 (past); January 1, 2014 - December 31, 2016 (current).
Additional Notes: Stratified by region.
Data Source: Manitoba Cancer Registry.

Page 48
FIGURE 34
Indicator: Clinical Practice Guidelines: Stage II or IIIA NSCLC Receiving Chemotherapy following Surgical Resection
Definition: Percent of stage II or IIIA non-small cell lung cancer patients who received chemotherapy following surgical resection.
Numerator: Number of stage II or IIIA non-small cell lung cancer patients who received chemotherapy following surgical resection.
Denominator: All patients diagnosed with stage II or IIIA non-small cell lung cancer who received chemotherapy following surgical resection.
Timeframe: January 1, 2011 - December 31, 2013 (past); January 1, 2014 - December 31, 2016 (current).
Additional Notes: Stratified by region.
Data Source: Manitoba Cancer Registry.

Page 49
FIGURE 35
Indicator: Blood and Marrow Transplants by Type of Transplant
Definition: Number of autologous and allogeneic (related, haploidentical, unrelated) transplants completed at CancerCare Manitoba.
Timeframe: January 1, 1997 - December 31, 2018.
Additional Notes: Allogeneic transplants stratified by type of transplant (related, haploidentical, unrelated).
Data Source: CancerCare Manitoba Blood and Marrow Transplant Program.

FIGURE 36
Indicator: Blood and Marrow Transplants, by Indication for Transplant
Definition: Proportion of transplants by indication in Manitoban pediatric (0-18 years of age) and adult transplant cases.
Numerator: The number of pediatric (0-18 years of age) and adult transplant cases.
Denominator: All Manitoba pediatric (0-18 years of age) and adult transplant cases.
Timeframe: January 1, 2016 - December 31, 2017.
Additional Notes: Stratified by indication for transplant in pediatric and adult cancer patients. Transplant is indicated for the following groups: Autologous: 6 months to 70 years; Allogeneic: birth to 65 years and 65-70 years on an individual basis balancing comorbidities, disease, and donor variables.
Data Source: CancerCare Manitoba Blood and Marrow Transplant Program.

Page 50
FIGURE 37
Indicator: Predictive and Prognostic Markers: Breast Cancer
Definition: Number of invasive breast cancer cases (female only) and number of estrogen receptor (ER), progesterone receptor (PR), and HER2 molecular tests completed.
Timeframe: January 1, 2011 - December 31, 2016.
Data Source: Manitoba Cancer Registry.

Page 51
FIGURE 38
Indicator: Predictive and Prognostic Markers: Colorectal Cancer
Definition: Number (and percentage) of new colorectal cancer cases eligible for and receiving Lynch screening over a two year period.
Timeframe: January 1, 2015 - December 31, 2016.
Data Source: Manitoba Cancer Registry.

Page 52
TABLE 13
Indicator: Clinical Trial Participation Rates
Definition: Percentage of adult and pediatric patients enrolled into clinical trials to the number of new cancer cases (all cancers), 2017 enrollment year.
Timeframe: January 1 - December 31, 2017.
Data Source: CancerCare Manitoba Clinical Trials Unit.
Additional Notes: Pediatric enrollment only reflects interventional trials. The denominator for adults is the confirmed number of new cancer cases for 2016.

Page 54
FIGURE 39
Indicator: Symptom Management: Edmonton Symptom Assessment Survey–revised (ESAS-r)
Definition: Severity of symptoms experienced by patients diagnosed with cancer, self-reported through the ESAS-r patient-reported outcome tool.
Numerator: Number of responses to ESAS-r questionnaires identifying a score for severity of ten commonly experienced symptoms.
Denominator: All ESAS-r questionnaires completed by patients at CancerCare Manitoba.
Timeframe: January 1, 2016 - December 31, 2018.
Additional Notes: Stratified by score category (0 = not present; 1-3 = mild; 4-6 = moderate; 7-10 = high). The Comprehensive Problem and Symptom Screening (COMPASS) questionnaire is completed by patients at every physician visit. The ESAS-r is part of this COMPASS questionnaire.
Data Source: Electronic Medical Record (ARIA), COMPASS and ESAS-r.

Page 55

FIGURE 40

Indicator: Rural Intravenous (IV) Chemotherapy Delivery

Definition: Proportional dot map highlighting the number of IV chemotherapy treatments that were delivered at Community Cancer Program sites (CCPs) or Regional Cancer Program sites (RCPs) to patients who live within each Regional Health Authority.
Population: Manitobans diagnosed with invasive cancer that have received IV chemotherapy at CCPs or RCPs outside Winnipeg.
Colour: The colour of each circle corresponds to the location of the CCPs or RCPs outside Winnipeg that delivered the IV chemotherapy treatment.
Timeframe: April 1, 2016 - March 31, 2018.
Data Source: CancerCare Manitoba Community Oncology Programs; Manitoba Cancer Registry.

TABLE 14

Indicator: Age-Standardized Incidence Rate

Definition: Annual age-standardized cancer incidence rate per 100,000 people (all ages). Allows the reader to compare cancer incidence rates between regions with different age structures (the rates are "adjusted" or "standardized" so that age differences are taken into account). This is done because age is closely associated with cancer incidence. By removing the effect of age we can make more representative comparisons between populations.
Numerator: All patients diagnosed with invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: All Manitoba residents, from Manitoba Health's population database.
Timeframe: January 1, 2014 - December 31, 2016.
Additional Notes: Stratified by region. Rates are age-standardized (using the direct standardization method) to the 2011 Manitoba population.
Data Source: Manitoba Cancer Registry; Manitoba Health Seniors and Active Living population registry (for denominator).

Indicator: Number of New Cancer Cases

Definition: Annual number of new cancer cases (invasive cases, all ages, excludes non-melanoma skin cancers as per standard national and international protocols). This number is used by healthcare planners as it estimates direct need for cancer services in a population and associated resource needs.
Timeframe: January 1 - December 31, 2016.
Additional Notes: Stratified by region.
Data Source: Manitoba Cancer Registry.

Page 56

TABLE 15

Indicator: Community Oncology Program: Physician Visits

Definition: Total number of physician visits to a Community Cancer Program site.
Timeframe: January 1, 2016 - December 31, 2017 (past); January 1, 2017 - December 31, 2018 (current).
Additional Notes: Excludes radiation oncology visits.
Data Source: CancerCare Manitoba Community Oncology Programs.

Indicator: Community Oncology Program: Outpatient Treatment Visits

Definition: Total number of outpatient treatment visits at a Community Cancer Program site.
Timeframe: January 1, 2016 - December 31, 2017 (past); January 1, 2017 - December 31, 2018 (current).
Additional Notes: Outpatient treatments include any anti-cancer treatment including intravenous (IV) chemotherapy, bladder instillation, intramuscular injection, subcutaneous injection, other IV treatment, IV fluid administration only, blood product transfusion, and oral treatment support.
Data Source: CancerCare Manitoba Community Oncology Programs.

Indicator: Community Oncology Program: New Patient Referrals

Definition: Total number of new patients' referrals to a Community Cancer Program site.
Timeframe: January 1, 2016 - December 31, 2017 (past); January 1, 2017 - December 31, 2018 (current).
Data Source: CancerCare Manitoba Community Oncology Programs.

Page 57

FIGURE 41

Indicator: Wait Times: Navigation

Definition: Percent of new referrals that met the target of 48 hours between the date the referral was received and first contact with patient.
Population: All new referrals received by the Provincial Cancer Referral and Navigation Service.
Timeframe: April 1, 2016 - March 31, 2018.
Data Source: CancerCare Manitoba Community Oncology Programs.

OUTCOMES

Page 59

FIGURE 42

Indicator: Number of Cancer-Related Deaths

Definition: Annual number of deaths due to invasive cancer (all ages, excluding non-melanoma skin cancers as per standard national and international protocols). This number is used by healthcare planners as it estimates direct need for cancer services in a population and associated resource allocation.
Timeframe: January 1, 1996 - December 31, 2016.
Data Source: Manitoba Vital Statistics Death database.

Indicator: Age-Standardized Mortality Rates

Definition: Annual age-standardized cancer mortality rate per 100,000 people (all ages). Allows the reader to compare cancer mortality rates between regions with different age structures (the rates are "adjusted" or "standardized" so that age differences are taken into account). This is done because age is closely associated with cancer mortality. By removing the effect of age we can make more representative comparisons between populations.
Numerator: All patients dying of invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: All Manitoba residents, from Manitoba Health, Seniors and Active Living population database.
Timeframe: January 1, 1996 - December 31, 2016.
Additional Notes: Rates are age-standardized (using the direct standardization method) to the 2011 Manitoba population.
Data Source: Manitoba Vital Statistics Death database; Manitoba Health, Seniors and Active Living population registry (for denominator).

FIGURE 43

Indicator: Age-Standardized Mortality Rates by Region and Type of Cancer

Definition: Annual age-standardized cancer mortality rate per 100,000 people (all ages). Allows the reader to compare cancer mortality rates in different regions with different age structures (the rates are "adjusted" or "standardized" so that age differences are taken into account). This is done because age is closely associated with cancer mortality. By removing the effect of age we can make more representative comparisons between populations.
Numerator: All patients dying of invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: All Manitoba residents, from Manitoba Health's population database.
Timeframe: January 1, 2014 - December 31, 2016
Additional Notes: Stratified by region and type of cancer (breast (female only), prostate, colorectal, lung and bronchus). Rates are age-standardized (using the direct standardization method) to the 2011 Manitoba population.
Data Source: Manitoba Vital Statistics Death database; Manitoba Health, Seniors and Active Living population registry (for denominator).

Page 60

FIGURE 44

Indicator: One-Year Relative Survival

Definition: Age-standardized one-year relative survival for cancer (all ages). Relative survival compares the survival experience of individuals with cancer to individuals without cancer (of the same age and sex). It is a way of comparing survival of people who have cancer with those who do not and identifies how much cancer shortens life (see the National Cancer Institute's online dictionary, www.cancer.gov/dictionary/).
Numerator: Observed survival (one year after diagnosis) for all patients who are diagnosed with invasive cancer (includes in situ bladder cancer; excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: Expected survival of Manitobans of a similar age and sex, based on life tables from Statistics Canada.
Timeframe: January 1, 2012 - December 31, 2016.
Additional Notes: Period methodology applied. Stratified by type of cancer (colorectal and lung cancer) and region. Comparison provided to comparable countries including Australia, Denmark, Norway, Sweden, and the United Kingdom with data from the International Cancer Benchmarking Partnership (January 1, 2004 - December 31, 2007).
Data Source: Manitoba Cancer Registry; Statistics Canada Life Tables Lifetables, Canada, Provinces and Territories (84-537-X) [Web resource]. Ottawa, ON: Statistics Canada; 2018 [Available at: https://

www150.statcan.gc.ca/n1/pub/84-537-x/84-537-x2018002-eng.htm; cited March 2019]), International Cancer Benchmarking Partnership.

Indicator: 5-Year Relative Survival
Definition: Age-standardized five-year relative survival for cancer (all ages). Relative survival compares the survival experience of individuals with cancer to individuals without cancer (of the same age and sex). It is a way of comparing survival of people who have cancer with those who do not and identifies how much cancer shortens life (see the National Cancer Institute's online dictionary, www.cancer.gov/dictionary/).
Numerator: Observed survival (five years after diagnosis) for all patients who are diagnosed with invasive cancer (includes in situ bladder cancer; excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: Expected survival of Manitobans of a similar age and sex, based on life tables from Statistics Canada.
Timeframe: January 1, 2012 - December 31, 2016.
Additional Notes: Period methodology applied. Stratified by type of cancer (colorectal and lung cancer) and region. Comparison provided to comparable countries including Australia, Denmark, Norway, Sweden, and the United Kingdom with data from the International Cancer Benchmarking Partnership (January 1, 2004 - December 31, 2007).
Data Source: Manitoba Cancer Registry (note: death information is reported routinely to the Manitoba Cancer Registry by Manitoba's Vital Statistics Agency); Manitoba Health population registry (for denominator); Manitoba Cancer Registry; Statistics Canada Life Tables (Lifetables, Canada, Provinces and Territories (84-537-X). Ottawa, ON: Statistics Canada; 2018 [Available at: https://www150.statcan.gc.ca/n1/pub/84-537-x/84-537-x2018002-eng.htm; cited March 2019]), International Cancer Benchmarking Partnership.

Page 61
FIGURE 45
Indicator: Number of Prevalent Cancer Cases
Definition: Number of people alive on January 1, 2006 who have been diagnosed with an invasive cancer (all ages, includes in situ bladder cancer; excludes non-melanoma skin cancers as per standard national and international protocols).
Timeframe: January 1, 2006 - December 31, 2015.
Additional Notes: Stratified by the time since diagnosis (1-year, 1-2 years, 2-5 years, and 5 or more years).
Data Source: Manitoba Cancer Registry.

TABLE 16
Indicator: Cancer Prevalence Proportion
Definition: Cancer prevalence proportion (per 100,000) by prevalence-duration (2-year, 5-year, 10-year).
Numerator: All patients alive on January 1, 2006 who were diagnosed with an invasive cancer (includes in situ bladder cancer; excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: Average between the 2015 and 2016 midpoint (July 1st) Manitoban population.
Timeframe: January 1, 2006 - December 31, 2015.
Additional Notes: Stratified by type of cancer. Prevalence-duration is a proxy for the specific care needs at different points of the cancer continuum. By estimating the number of patients at each point of the continuum we can develop a cancer control strategy specific to our population. For example: 2-year: This timeframe includes individuals who are likely receiving active treatment for their cancers such as chemotherapy, surgery, or radiation therapy; 5-year: Extending to 5-years means we are also including individuals who may have completed treatment and are receiving regular follow-up for recurrence and adverse reactions; 10-year: When we extend to 10-years we also include individuals who may be receiving care related to survivorship.
Data Source: Manitoba Cancer Registry; Manitoba Health, Seniors and Active Living population registry (for denominator).

Page 62
TABLE 17
Indicator: Age-Standardized Incidence Rate by Region and Type of Cancer
Definition: Annual age-standardized cancer incidence rate per 100,000 people (all ages). Allows the reader to compare cancer incidence rates between regions with different age structures (the rates are "adjusted" or "standardized" so that age differences are taken into account). This is done because age is closely associated with cancer incidence. By removing the effect of age we can make more representative comparisons between populations.
Numerator: All patients diagnosed with invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: All Manitoba residents, from Manitoba Health's population database.
Timeframe: January 1, 2014 - December 31, 2016.
Additional Notes: Stratified by region. Rates are age-standardized (using the direct standardization method) to the 2011 Manitoba population.
Data Source: Manitoba Cancer Registry; Manitoba Health Seniors and Active Living population registry (for denominator).

Indicator: Age-standardized mortality rate by region and type of cancer
Definition: Annual age-standardized cancer mortality rate per 100,000 people (all ages). Allows the reader to compare cancer mortality rates between regions with different age structures (the rates are "adjusted" or "standardized" so that age differences are taken into account). This is done because age is closely associated with cancer mortality. By removing the effect of age we can make more representative comparisons between populations.
Numerator: All patients dying of invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: All Manitoba residents, from Manitoba Health Seniors and Active Living population database.
Timeframe: January 1, 2014 - December 31, 2016.
Additional Notes: Stratified by region and type of cancer (breast (female only), prostate, colorectal, lung and bronchus). Rates are age-standardized (using the direct standardization method) to the 2011 Manitoba population.
Data Source: Manitoba Vital Statistics Death database; Manitoba Health Seniors and Active Living population registry (for denominator).

FIGURE 46
Indicator: International Benchmarks on Cancer Mortality
Definition: Age-standardized cancer mortality rate per 100,000 people (all ages) across Organisation for Economic Cooperation and Development (OECD) countries.
Numerator: All patients dying of invasive cancer (excludes non-melanoma skin cancers as per standard national and international protocols).
Denominator: All residents, from OECD country databases, as identified by the International Agency for Research on Cancer (IARC), GLOBOCAN 2012.
Timeframe: January 1, 2011 - December 31, 2015 (OECD).
Additional Notes: Mortality rates are based on numbers of deaths registered in a country in a year divided by the size of the corresponding population. The rates have been directly age-standardized to the 2010 OECD population (available at http://oe.cd/mortality) to remove variations arising from differences in age structures across countries and over time. The source is the World Health Organization (WHO) Mortality Database. Deaths from all cancers are classified to ICD-10 codes C00-C97. The international comparability of cancer mortality data can be affected by differences in medical training and practices as well as in death certification across countries. The Manitoba age-standardized rate (using the direct standardization method) to the 2011 Manitoba population is not directly comparable to the rates estimated for the OECD countries.
Data Source: GLOBOCAN 2012.

SURVIVORSHIP

Page 64
FIGURE 47
Indicator: Transitional Appointments
Definition: Number of transitional appointments booked each year.
Numerator: Number of transitional appointments booked each year at CancerCare Manitoba.
Timeframe: January 1, 2014 - December 31, 2017.
Additional Notes: Stratified by type of cancer (breast, colorectal, gynecologic, lymphoma, advanced cancer).
Data Source: CancerCare Manitoba Transitions Program.

PALLIATIVE AND ADVANCED DISEASE

Page 66
FIGURE 48
Indicator: Model of Palliative Care
Definition: Model of integrated palliative care highlighting how palliative care can be part of integrated across the patient experience, adapted.[3]
Source: Canadian Virtual Hospice; Pippa Hawley. The bow tie model of 21st century palliative care, 2015. See: www.virtualhospice.ca (accessed 11 June 2019).

PATIENT EXPERIENCE

Page 69

FIGURE 49

Indicator: Patient Satisfaction

Definition: Overall patient satisfaction scores and patient satisfaction scores across six dimensions of person-centred care (physical comfort; respect for patient preferences; access to care; coordination and integration of care; information, communication, and education; emotional support) for outpatient cancer care.
Numerator: Number of patients who are satisfied with outpatient cancer care (composite measure) they received; based on self-reported survey data.
Denominator: All patients who participated in the survey (a sample of all patients who visited CancerCare Manitoba during a specified window of time and who were still alive at the time of the survey mailout date).
Timeframe: June 1, 2007 - March 31, 2008 (past); June 1, 2011 - October 31, 2011 (past); July 1 - December 31, 2015 (current).
Additional Notes: Compared to national benchmarks provided by NRC Health. This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2008, 2011, 2016).

Page 70

FIGURE 50

Indicator: Patient Involvement in Care

Definition: Patient satisfaction regarding whether patients felt they were involved in decisions about their care as much as they wanted.
Numerator: Number of survey respondents who provided a positive response ('Yes, completely" or "Yes, somewhat") when asked "Were you involved in decisions about your care as much as you wanted?"
Denominator: All respondents who provided a response to this question.
Timeframe: July 1 - December 31, 2015.
Additional Notes: Compared to national benchmark provided by NRC Health. This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

FIGURE 51

Indicator: Caregiver Involvement

Definition: Patient satisfaction regarding whether patients felt their care providers gave their family or friends enough opportunity to be involved in their care or treatment.
Numerator: Number of survey respondents who provided a positive response ("Right Amount") when asked "How much opportunity did your care providers give your family or friends to be involved in your care and treatment?"
Denominator: All respondents who provided a response to this question.
Timeframe: July 1 - December 31, 2015.
Additional Notes: Compared to national benchmark provided by NRC Health. This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Page 72

FIGURE 52

Indicator: Proportion of New Cancer Diagnoses in Older Adults

Definition: The proportion of new cancer diagnoses in older adults (over the age of 70).
Numerator: Number of patients over the age of 70 diagnosed with cancer.
Denominator: All patients diagnosed with cancer.
Timeframe: January 1, 2009 - December 31, 2014.
Additional Notes: Stratified by type of cancer.
Data Source: Manitoba Cancer Registry.

Page 73

FIGURE 53

Indicator: Consideration of Travel Concerns When Planning Treatment

Definition: Patient satisfaction regarding whether patients felt care providers considered their travel concerns when planning for tests and treatments.
Numerator: Number of survey respondents who provided a positive response ('Yes, completely" or "Yes, somewhat") when asked "If you had to travel for any tests or treatments, did your care providers consider your travel concerns when planning for your treatment?"
Denominator: All respondents who provided a response to this question.
Timeframe: July 1 - December 31, 2015.
Additional Notes: Compared to national benchmarks provided by NRC Health. This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2008, 2011, 2016).

FIGURE 54

Indicator: Satisfaction scores over time for AOPSS' Dimension of Emotional Support

Definition: Satisfaction across the person-centred care dimension of emotional health.
Numerator: All respondents who provided a positive response to the series of questions that roll up into this dimension of person-centred care.
Denominator: All respondents who provided any response to the series of questions that roll up into this dimension of person-centred care.
Timeframe: July 1 - December 31, 2015.
Additional Notes: All core questions in the Ambulatory Oncology Patient Satisfaction Survey (AOPSS) are rolled up into six dimensions of care. Here we highlight the dimension of emotional support. Core questions rolled up into the dimension of emotional support include:

- Were you told of your diagnosis in a sensitive manner?
- When you were first told of your illness, were you referred to a care provider who could help you with anxieties and fears?
- Did you get enough information about possible changes in your emotions?
- Did you get enough information about possible changes in your sexual activity?
- Did you get enough information about possible changes in your relationship with your spouse or

partner?

- In the past 6 months, has someone at CancerCare Manitoba put you in touch with other care providers who could help you with anxieties and fears?
- Did you get as much help as you wanted in figuring out how to pay for any extra costs for your cancer care?
- Did a care provider go out of his or her way to help you or make you feel better?

Compared to national benchmarks provided by NRC Health. This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2008, 2011, 2016).

FAST FACTS APPENDIX

OVERVIEW OF CANCER SYSTEM

Page 9

Fast Fact: **Nearly 1 in 2 Canadians will be diagnosed with cancer in their lifetime.**
Timeframe: January 1 – December 31, 2017.
Reference: 5
Data Source: Canadian Cancer Society, 2018.

Fast Fact: **The five-year relative survival rate in Manitoba has improved from 53% (1997-1999) to 62% in (2014-2016).**
Timeframe: January 1, 1997 - December 31, 1999 (past); January 1, 2014 - December 31, 2016 (current).
Additional Notes: Direct comparison of these two survival estimates is not recommended due to change in methodology over time. Past estimates (1997-1999) used a cohort methodology. Current estimates (2014-2016) were based on a period methodology. Still, this fast fact highlights improvements to cancer survival over the past 20 years.
Reference: 6
Data Source: Manitoba Cancer Registry.

Fast Fact: **Four cancer types make up 1/2 of all cancers in Manitoba.**
Timeframe: January 1, 2014 - December 31, 2016.
Data Source: Manitoba Cancer Registry.

Fast Fact: **Up to 50% of adult cancer cases can be attributed to preventable risk factors.**
Timeframe: January 1 - December 31, 2015 (The Canadian Population Attributable Risk of Cancer (ComPARe) study); January 1 - December 31, 2010 (Parkin, Boyd and Walker, 2011).
Reference: 7-9

Fast Fact: **6,481 new cases of invasive cancer in Manitoba (2016).**
Timeframe: January 1 - December 31, 2016.
Data Source: Manitoba Cancer Registry.

Fast Fact: **Nearly 2,800 cancer-related deaths every year in Manitoba.**
Timeframe: January 1 - December 31, 2016.
Data Source: Manitoba Vital Statistics Death database.

Page 11

Fast Fact: **Nearly 1 in 2 Canadians is expected to be diagnosed with cancer in their lifetime.**
Timeframe: January 1 – December 31, 2017.
Reference: 5
Data Source: Canadian Cancer Society, 2018.

Fast Fact: **1 in 4 Canadians is expected to die from cancer.**
Timeframe: January 1 – December 31, 2017.
Reference: 5
Data Source: Canadian Cancer Society, 2018.

PREVENTION

Page 17

Fast Fact: **76% of program participants have successfully reduced or quit smoking!**
Timeframe: January 1, 2012 - December 31, 2018.
Data Source: CancerCare Manitoba Quit Smoking Program.

CCMB SCREENING PROGRAMS

Page 19

Fast Fact: **BreastCheck sent 342,683 invitation and recall letters to Manitobans.**
Timeframe: April 1, 2013 - March 31, 2018.
Data Source: BreastCheck Registry.

Fast Fact: **223,012 mammograms were completed at BreastCheck sites and on the mobile.**
Timeframe: April 1, 2013 - March 31, 2018.
Data Source: BreastCheck Registry.

Fast Fact: **1,164 program breast cancers were detected.**
Timeframe: April 1, 2013 - March 31, 2018.
Data Source: BreastCheck Registry.

Fast Fact: **CervixCheck sent 265,819 invitation and recall letters to Manitobans.**
Timeframe: April 1, 2013 - March 31, 2018.
Data Source: CervixCheck Registry.

Fast Fact: **CervixCheck sent 24,838 fail-safe letters to Manitobans and their providers.**
Timeframe: April 1, 2013 - March 31, 2018.
Data Source: CervixCheck Registry.

Fast Fact: **629,062 Pap tests and 48,313 colposcopies were registered in the CervixCheck Registry.**
Timeframe: April 1, 2013 - March 31, 2018.
Data Source: CervixCheck Registry.

Fast Fact: **ColonCheck sent 282,646 FOBT kits to Manitobans.**
Timeframe: April 1, 2013 - March 31, 2018.
Data Source: ColonCheck Registry.

Fast Fact: **127,898 ColonCheck FOBT kits were completed by Manitobans.**
Timeframe: April 1, 2013 - March 31, 2018.
Data Source: ColonCheck Registry.

Fast Fact: **5,052 Manitobans were referred for follow-up testing after an abnormal FOBT.**
Timeframe: April 1, 2013 - March 31, 2018.
Data Source: ColonCheck Registry.

Page 20

Fast Fact: **In 2017, 78.5% of women aged 50-74 reported having a mammogram in the past three years in the Canadian Community Health Survey. The self-reported rate for Manitoba was 72.3%.**
Timeframe: January 1 - December 31, 2017.
Additional Notes: These values reflect self-reported rates from the Canadian Community Health Survey, 2017.
Reference: 22
Data Source: Statistics Canada, Canadian Community Health Survey, 2017.

Fast Fact: **In 2017, 74.0% of women aged 25-69 reported having a Pap test in the past three years in the Canadian Community Health Survey. The self-reported rate for Manitoba was 81.7%.**
Timeframe: January 1- December 31, 2017.
Additional Notes: These values reflect self-reported rates from the Canadian Community Health Survey, 2017.
Reference: 22
Data Source: Statistics Canada, Canadian Community Health Survey, 2017.

Fast Fact: **In 2017, 40.6% of Canadians aged 50-74 reported having a fecal test in the past two years in the Canadian Community Health Survey. The self-reported rate for Manitoba was 53.0%.**
Timeframe: January 1 - December 31, 2017.
Additional Notes: These values reflect self-reported rates from the Canadian Community Health Survey, 2017.
Reference: 22
Data Source: Statistics Canada, Canadian Community Health Survey, 2017.

Page 21

Fast Fact: **Over a two year period of January 1st, 2014 to December 31st, 2015 BreastCheck facilitated follow-up of 4,385 abnormal mammogram results. This accounted to about 5% of all screening mammograms. All abnormal mammograms are referred for further testing, including diagnostic mammograms or ultrasounds. Most women (89.2%) requiring further testing had a benign outcome.**
Timeframe: January 1, 2014 to December 31, 2015 with follow-up to December 31, 2017.
Data Source: BreastCheck Registry.

Fast Fact: **Nearly 43, 000 mammogram appointments are completed each year by BreastCheck.**
Timeframe: January 1, 2016 to December 31, 2017.
Data Source: BreastCheck Registry.

Fast Fact: Over 900 additional mammograms were completed in 2017 to women outside cancer screening eligibility (under age 50 and over age 75).
Timeframe: January 1 - December 31, 2017.
Data Source: BreastCheck Registry.

Fast Fact: In 2017, 2,451 appointments were lost due to 'no shows'.
Timeframe: January 1 - December 31, 2017.
Data Source: BreastCheck Registry.

Fast Fact: There were over 7,900 mobile appointments in 2017.
Timeframe: January 1 - December 31, 2017.
Data Source: BreastCheck Registry.

Page 22
Fast Fact: 90% of screened women had a normal Pap test result.
Timeframe: January 1, 2015 - December 31, 2017.
Additional Notes: This fact highlights the percentage of women with a high-grade Pap test result between January 1, 2015 - December 31, 2017 who had a follow-up colposcopy within 12 months of the test result.
Data Source: CervixCheck Registry.

Page 23
Fast Fact: 42.4% of Manitobans who were mailed a colorectal cancer screening invitation completed the enclosed FOBT.
Timeframe: January 1, 2016 - December 31, 2017.
Data Source: ColonCheck Registry.

Fast Fact: Men and women who have completed a screening test in the past are more likely to complete one again (74.5% of invitations sent to recalls are completed compared to 22.0% of new invites).
Timeframe: January 1, 2016 - December 31, 2017.
Data Source: ColonCheck Registry.

Fast Fact: Women were more likely to complete a FOBT screening test than men (46.8% compared to 37.9%).
Timeframe: January 1, 2016 - December 31, 2017.
Data Source: ColonCheck Registry.

Fast Fact: Participation in colorectal cancer screening tends to increase with age (29.1% of 50-54 year olds completed a mailed invitation compared to 56.1% of 70-74 year olds).
Timeframe: January 1, 2016 - December 31, 2017.
Data Source: ColonCheck Registry.

DETECTING CANCER

Page 25
Fast Fact: Lung cancer is the most common cancer among all Canadians.[5] 13% of Manitobans with cancer have lung cancer.
Timeframe: January 1 - December 31, 2016.
Reference: 5
Data Source: Manitoba Cancer Registry; Canadian Cancer Statistics, 2018[7].

Page 26
Fast Fact: Between 50 to 60 children are diagnosed with cancer every year in Manitoba.
Timeframe: January 1, 2006 - December 31, 2016.
Data Source: Manitoba Cancer Registry.

Page 27
Fast Fact: In 2017, 34 AYAs were enrolled to PROFYLE across Canada.
Timeframe: Early 2016 - December 31, 2017.
Additional Notes: Exact date of inception is unknown.
Data Source: PROFYLE database.

Page 28
Fast Fact: That's about 45 hematology referrals per week!
Timeframe: August 2009 - December 31, 2017.
Data Source: CancerCare Manitoba Provincial Cancer Referral and Navigation Service; Manitoba Cancer Registry.
Fast Fact: The provision of all care related to blood disorders at CCMB is in addition to the 6,481 new cancer cases CCMB oncologists provide care for on an annual basis.
Timeframe: January 1 - December 31, 2016.
Data Source: CancerCare Manitoba Provincial Cancer Referral and Navigation Service; Manitoba Cancer Registry.

Page 35
Fast Fact: In the 2016 Ambulatory Oncology Patient Satisfaction Survey (AOPSS), a standardized patient satisfaction survey used across Canada, 65% of respondents told us they perceived waiting 2 months or less for treatment after their initial cancer screening test or appointment with their family doctor where they voiced their initial health concerns. Furthermore there was little variation between regions (ranging 61-69% selecting 2 months or less).
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question. Data excludes respondents who identified that this question was not applicable to them and those who did not respond.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Page 36
Fast Fact: For many cancers we see decreased wait times in 2017. We continue to implement new and innovative ways to decrease wait times for IV chemotherapy across Manitoba!
Timeframe: January 1, 2016 - December 31, 2017.
Data Source: CancerCare Manitoba's Provincial Cancer Referral and Navigation Service, Electronic Patient Record (ARIA), and System Performance.

Page 37
Fast Fact: Regardless of cancer type, 100% of patients received their radiation treatment within 28 days of being identified as ready-to-treat!
Timeframe: January 1, 2016 - December 31, 2017.
Data Source: CancerCare Manitoba's Radiation Oncology Program and System Performance.

TREATMENT

Page 39
Fast Fact: Nearly two in five patients underwent systemic therapy in Manitoba.
Timeframe: January 1, 2014 - December 31, 2016.
Data Source: Manitoba Cancer Registry.

Fast Fact: More than one in four patients underwent radiation therapy in Manitoba.
Timeframe: January 1, 2014 - December 31, 2016.
Data Source: Manitoba Cancer Registry.

Fast Fact: More than one in two patients underwent surgery in Manitoba.
Timeframe: January 1, 2014 - December 31, 2016.
Data Source: Manitoba Cancer Registry.

Page 40
Fast Fact: Nearly 40% of all Manitobans diagnosed with cancer will require systemic therapy.
Timeframe: January 1, 2014 - December 31, 2016.
Data Source: Manitoba Cancer Registry.

Fast Fact: Waiting for results and treatments can be a difficult time for patients and their loved ones. We hope to minimize stress caused by waiting. In the 2016 Ambulatory Oncology Patient Satisfaction Survey (AOPSS) over 95% of Manitoban respondents told us they waited 30 minutes or less in the waiting room for their scheduled radiation or chemotherapy treatment appointments.
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who received chemotherapy or radiation therapy.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Fast Fact: In addition, over 80% of respondents who had to wait longer than expected told us that their health care providers did everything they could to make them more comfortable during this wait.
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February

1, 2016. The denominator is all respondents who received chemotherapy or radiation therapy. Data exclude respondents who identified that this question was not applicable to them and those who did not respond.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Page 41
Fast Fact: Over 25% of all Manitobans diagnosed with cancer will require radiation therapy.
Timeframe: January 1, 2014 - December 31, 2016.
Data Source: Manitoba Cancer Registry.

Fast Fact: 48,626 radiation treatments (fractions) were provided to patients at Winnipeg and Brandon sites in 2016.
Timeframe: January 1 - December 31, 2016.
Data Source: CancerCare Manitoba Radiation Oncology Program.

Page 42
Fast Fact: Over 50% of all Manitobans diagnosed with cancer will require surgery.
Timeframe: January 1, 2014 - December 31, 2016.
Data Source: Manitoba Cancer Registry.

Page 45
Fast Fact: Manitoba is a top performing province.
Timeframe: January 1, 2010 - December 31, 2014.
Reference: 53
Data Source: Manitoba Cancer Registry, Canadian Partnership Against Cancer System Performance Report, 2018.

Page 46
Fast Fact: 8 of 10 Canadian provinces report on this indicator through the Canadian Partnership Against Cancer.
Reference: 61
Data Source: Manitoba Cancer Registry; Canadian Partnership Against Cancer System Performance Report, 2016.

Fast Fact: 67% of women with invasive breast cancer in Manitoba received breast conserving surgery instead of mastectomy, one of the best rates in Canada.
Timeframe: April 1, 2014 – March 31, 2016.
Reference: 64
Data Source: Manitoba Cancer Registry; Canadian Partnership Against Cancer.

Page 47
Fast Fact: 5 of 5 RHAs achieved the 90% target.
Timeframe: January 1, 2014 - December 31, 2016.
Data Source: Manitoba Cancer Registry.

Fast Fact: 8 of 10 Canadian provinces report on this indicator through the Canadian Partnership Against Cancer.
Reference: 61
Data Source: Manitoba Cancer Registry; Canadian Partnership Against Cancer System Performance Report, 2016.

Page 48
Fast Fact: 6 of 10 Canadian provinces report on this indicator through the Canadian Partnership Against Cancer.
Reference: 61
Data Source: Manitoba Cancer Registry; Canadian Partnership Against Cancer System Performance Report, 2016.

Page 49
Fast Fact: About 2 adult patients receive blood or marrow transplants every week.
Timeframe: January 1, 1997 - December 31, 2018.
Data Source: Manitoba Blood and Marrow Transplant Program.

Fast Fact: Median wait times for adult autologous lymphoma and myeloma patients from apheresis to stem cell infusion was approximately 35 days for the first three quarters of 2018.
Timeframe: January 1 - September 30, 2018.
Data Source: Manitoba Blood and Marrow Transplant Program.

Page 50
Fast Fact: 9.4% of all Manitoban women with a breast cancer diagnosis were diagnosed with triple negative breast cancer (2014-2016).
Timeframe: January 1, 2014 - December 31, 2016.
Data Source: Manitoba Cancer Registry.

Page 51
Fast Fact: 75% of individuals who received Lynch screening were under the age of 70.
Timeframe: January 1, 2015 - December 31, 2016.
Data Source: Manitoba Cancer Registry.

Fast Fact: 35% of all new colorectal patients received Lynch screening in 2015 and 2016.
Timeframe: January 1, 2015 - December 31, 2016.
Data Source: Manitoba Cancer Registry.

Page 52
Fast Fact: In 2017, 162 *adult* patients participated in a clinical trial. This was a 49% increase from 2016.
Timeframe: January 1 - December 31, 2016 (past); January 1 - December 31, 2017 (current).
Data Source: Manitoba Cancer Registry; CancerCare Manitoba Clinical Trials Unit.

Fast Fact: In 2017, 167 *pediatric* patients participated in a clinical trial. This was an 11% increase from 2016.
Timeframe: January 1 - December 31, 2016 (past); January 1 - December 31, 2017 (current).
Data Source: Manitoba Cancer Registry; CancerCare Manitoba Clinical Trials Unit.

Fast Fact: In 2017, there were 60 *adult* clinical trials open for participation. This was a 30% increase from 2016.
Timeframe: January 1 - December 31, 2016 (past); January 1 - December 31, 2017 (current).
Data Source: Manitoba Cancer Registry; CancerCare Manitoba Clinical Trials Unit.

Fast Fact: In 2017, there were 52 *pediatric* clinical trials open for participation. There was no change from 2016.
Timeframe: January 1 - December 31, 2016 (past); January 1 - December 31, 2017 (current).
Data Source: Manitoba Cancer Registry; CancerCare Manitoba Clinical Trials Unit.

Fast Fact: Data from the 2016 Ambulatory Oncology Patient Satisfaction Survey (AOPSS) told us that 94% of respondents felt either completely or somewhat comfortable talking to staff about questions they had about new clinical trials or new treatments for their cancer. This was similar to the national average of 95%.
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question. Excludes respondents who identified that this question was not applicable to them.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Fast Fact: As of February 2019, our Clinical Trials Unit had 14 trials open that included the AYA age group.
Timeframe: As of February 1, 2019.
Data Source: CancerCare Manitoba Clinical Trials Unit.

Page 53
Fast Fact: 90% Hand Hygiene Compliance, 2017. In 2016 hand hygiene compliance was 83%. Our target is 90% or higher.
Timeframe: January 1 - December 31, 2017.
Data Source: CancerCare Manitoba Quality, Patient Safety, and Risk.

Fast Fact: 92% Safe Surgical Compliance, 2017. In 2016 safe surgical checklist compliance was 91%. Our target is 95% or higher.
Timeframe: January 1 - December 31, 2017.
Data Source: CancerCare Manitoba Quality, Patient Safety, and Risk.

Fast Fact: We are devoted to patient engagement. Between July 2017 and June 2018 there were 71 patient advisors on 28 new projects.
Timeframe: July 1, 2017 - June 30, 2018.
Data Source: CancerCare Manitoba Quality, Patient Safety, and Risk.

Fast Fact: 88% of respondents reported feeling completely safe while receiving care at CCMB in the 2016 AOPSS.
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February

1, 2016. The denominator is all respondents who provided a response to this question. Data excludes respondents who did not respond to this question.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Fast Fact: 72% Of providers washed their hands before patient contact. 60% washed their hands afterwards.
Timeframe: During February 2018 audit.
Data Source: CancerCare Manitoba Quality, Patient Safety, and Risk.

Page 54
Fast Fact: Between January 2016 and December 2017 14,619 COMPASS questionnaires contained a dignity concern. This made up 15% of all COMPASS questionnaires completed during that timeframe.
Timeframe: January 1, 2016 - December 31, 2017.
Data Source: Electronic Medical Record (ARIA).

Fast Fact: Between April 2017 and March 2018 there were 2,293 visits to the Urgent Cancer Care Clinic and 1,139 calls to the Cancer Helpline.
Timeframe: April 1, 2017 - March 31, 2018.
Data Source: CancerCare Manitoba's Electronic Medical Record (ARIA).

Fast Fact: When surveyed, 77% of respondents told us their healthcare team always or usually worked with them to make a plan to help them manage symptoms or concerns they identified on COMPASS. There was little variation between health regions.
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question. Data exclude respondents who identified that they did not have any symptoms or concerns, those who identified that they didn't know about or were not given a COMPASS questionnaire, and those who did not respond to this question.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Fast Fact: In the 2016 Ambulatory Oncology Patient Satisfaction Survey we asked patients to tells us whether they felt their care provider did everything they could to control their pain or discomfort. Many individuals in Manitoba (70%) and Canada (72%) provided a positive response to this question.
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question. Data exclude respondents who identified that they did not experience any pain and those who did not respond to this question.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Page 55
Fast Fact: Across the province, 68% of patients treated with IV chemotherapy outside of Winnipeg were provided this service within the same RHA they lived.
Timeframe: April 1, 2013 - March 31, 2014 (past); April 1, 2016 - March 31, 2014 (current).
Data Source: CancerCare Manitoba's Community Oncology Program and Electronic Medical Record (ARIA).

Page 56
Fast Fact: 8,108 intravenous (IV) chemotherapy sessions were delivered outside Winnipeg in 2017/18. This makes up 28% of all provincial IV chemotherapy delivery and is a 5% increase from the previous year.
Timeframe: April 1, 2016 - March 31, 2017 (past); April 1, 2017 - March 31, 2018 (current).
Data Source: CancerCare Manitoba's Community Oncology Program and Electronic Medical Record (ARIA).

Fast Fact: Brandon's Western Manitoba Cancer Centre has been providing radiation treatment to Manitobans since June 2011. Between June 2011 and March 2017 over 2,000 patients were able to receive their treatments closer to home. This equates to approximately 32,000 radiation treatments!
Timeframe: June 1, 2011 - March 31, 2017.
Data Source: CancerCare Manitoba's Community Oncology Program; Western Manitoba Cancer Centre.

Fast Fact: In 2017/18* patients and their families were able to save over 13.3 million kilometers in travel due to Community Cancer Programs!
Timeframe: April 1, 2017 - March 31, 2018.
Data Source: CancerCare Manitoba's Community Oncology Program and Electronic Medical Record (ARIA).

Fast Fact: We hear you and appreciate your feedback. Results from the 2016 AOPSS revealed that across Manitoba only 52% of respondents felt that their care provider had taken their family or living situation into account when planning treatment. This was low across all regions with a range of 46% in the Northern Health Region to 62% in Prairie Mountain Health. Winnipeg also had a low proportion at 49%.
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator includes all respondents who provided a response to this question.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Fast Fact: Only 48% felt their care providers considered their travel concerns when planning treatment. Regional variation ranged between 46% in Interlake Eastern RHA to 59% in Southern Health - Santé Sud. Winnipeg had the lowest score 35%.
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Page 57
Fast Fact: 1,935 new patient referrals to Rural and Winnipeg Navigation, April 2017 - March 2018. This was an 18% increase since the previous year (2016/17) reflecting expansion of the provincial service. This value is expected to continue rising due to a growing program.
Timeframe: April 1, 2016 - March 31, 2017 (past); April 1, 2017 - March 31, 2018 (current).
Data Source: CancerCare Manitoba Community Oncology Program and the Provincial Cancer Referral and Navigation Service.

Fast Fact: Since inception of the Community Oncology Program (2011) there have been 7,652 new patient referrals to Rural and Winnipeg Navigation!
Timeframe: April 1, 2011 - March 31, 2018.
Data Source: CancerCare Manitoba Community Oncology Program and the Provincial Cancer Referral and Navigation Service.

Fast Fact: 53% of new patient referrals to Rural and Winnipeg Navigation came from primary care providers.
Timeframe: April 1, 2011 - March 31, 2018.
Data Source: CancerCare Manitoba Community Oncology Program and the Provincial Cancer Referral and Navigation Service.

Fast Fact: 5% of new patients did not have a primary care provider.
Timeframe: April 1, 2011 - March 31, 2018.
Data Source: CancerCare Manitoba Community Oncology Program and the Provincial Cancer Referral and Navigation Service.

Fast Fact: Most common cancers associated with new patient referrals to Rural and Winnipeg Navigation.
Timeframe: April 1, 2011 - March 31, 2018.
Additional Notes: Stratified by disease site grouping (gastrointestinal (GI), breast, thoracic, lymphatic, genitourinary (GU), gynecological (GYNE), other).
Data Source: CancerCare Manitoba Community Oncology Program and the Provincial Cancer Referral and Navigation Service.

Fast Fact: Over 85% of all new patient referrals to Rural and Winnipeg Navigation were at the beginning of their journey with cancer.
Timeframe: April 1, 2011 - March 31, 2018.
Data Source: CancerCare Manitoba Community Oncology Program and the Provincial Cancer Referral and Navigation Service.

OUTCOMES

Page 59
Fast Fact: Since 1996, age-standardized mortality rates have decreased for the most common cancers: breast: 29% decrease; colorectal: 25% decrease; lung: 24% decrease; prostate: 23% decrease.
Timeframe: January 1 - December 31, 1996 (past); January 1 - December 31, 2016 (current).
Data Source: Manitoba Vital Statistics Death database, Manitoba Health Seniors and Active Living population registry (for denominator).

Page 60
Fast Fact: One-year relative survival for all invasive cancers = 77%. Five-year relative survival for all invasive cancer = 62%.
Timeframe: January 1, 2012 - December 31, 2016.
Additional Notes: For more information on relative survival rates please see the Technical Appendix (page 93).
Data Source: Manitoba Cancer Registry; Statistics Cancer Life Tables, Canada, Provinces and Territories (84-537-X) [Web resource]. Ottawa, ON: Statistics Canada; 2018 [Available at: https://www150.statcan.gc.ca/n1/pub/84-537- x/84-537-x2018002-eng.htm; cited March 2019].

SURVIVORSHIP

Page 64
Fast Fact: In 2017, there were almost 90 transitional appointments booked every month.
Timeframe: January 1, 2014 - December 31, 2017.
Data Source: CancerCare Manitoba Transitions Program.

Fast Fact: Nearly 1 out of every 40 Manitobans have survived a cancer they were diagnosed with in the past 10 years. This number is expected to continue growing.
Timeframe: January 1, 2006 - December 31, 2015.
Additional Notes: This includes all patients diagnosed with invasive cancer since January 1, 2006 (excludes non-melanoma skin cancers as per standard national/international protocols) and who were still alive as of January 1, 2016.
Data Source: Manitoba Cancer Registry.

Fast Fact: As of January 1, 2016 32,756 individuals were still alive after a cancer diagnosis within the last 10 years.
Timeframe: January 1, 2006 - December 31, 2015.
Additional Notes: This includes all patients diagnosed with invasive cancer since January 1, 2006 (excludes non-melanoma skin cancers as per standard national/international protocols) and who were still alive as of January 1, 2016.
Data Source: Manitoba Cancer Registry.

Fast Fact: Many cancer survivors have had a previous diagnosis of prostate or breast cancer.
Timeframe: January 1, 2006 - December 31, 2015.
Data Source: Manitoba Cancer Registry.

PALLIATIVE AND ADVANCED DISEASE

Page 66
Fast Fact: "Estimates suggest that between 62% and 89% of those who die could benefit from palliative care - including nearly everyone who does not die unexpectedly".
Timeframe: January 1, 2016 - December 31, 2017.
Reference: 100-104
Data Source: Canadian Institute for Health Information.

Fast Fact: Between July 2017 and June 2018 nearly, 4,000 questionnaires identified a "Yes" to at least one of these questions.
Timeframe: July 1, 2017 - June 30, 2018.
Additional Notes: This fast fact is related to advance care planning or goals of care.
Data Source: CancerCare Manitoba's Electronic Patient Record (ARIA).

Fast Fact: In 2017, there were 2,962 psychosocial support visits with loved ones and caregivers to help them cope with grieving and bereavement.
Timeframe: January 1 - December 31, 2017.
Data Source: CancerCare Manitoba Patient and Family Support Services.

Page 67
Fast Fact: In Manitoba, 18% of patients had two or more admissions to acute-care hospitals within the last 28 days of life (2014/15 data). Nationally this value is higher at 23%.
Timeframe: January 1, 2014 - December 31, 2015.
Reference: 21
Data Source: Manitoba Health, Seniors and Active Living hospital discharge databases; Canadian Partnership Against Cancer, 2017.

Fast Fact: In a recent report, Canadian Partnership Against Cancer (CPAC) found that most cancer patients in Canada die in a hospital (66.8% in 2012) rather than a private home.
Timeframe: January 1 - December 31, 2012.
Reference: 21
Data Source: Manitoba Health, Seniors and Active Living hospital discharge databases; Canadian Partnership Against Cancer, 2017.

Fast Fact: In the first two years (June2016-2018) the Manitoba MAID team has had 625 contacts from patients resulting in 146 assisted deaths. 71% of the assisted deaths were for individuals with a terminal cancer diagnosis.
Timeframe: June 1, 2016 - June 30, 2018.
Data Source: Medical Assistance in Dying (MAID) Program.

Fast Fact: Each year approximately 1,200 individuals are accepted into the WRHA Palliative care Program. Approximately 80% of these individuals will have a cancer diagnosis.
Timeframe: April 1, 2015 - March 31, 2018.
Data Source: Winnipeg Regional Health Authority Palliative Care Program.

PATIENT EXPERIENCE

Page 69
Fast Fact: 98.6% would rate the quality of care they received at CCMB over the past 6 months as good, very good, or excellent.
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question. Data exclude non-response.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Fast Fact: 78.6% felt they had received enough information about what would happen next and the follow up care they required after their treatment.
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question. Data exclude respondents who identified that their treatment was not complete and those who didn't respond.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Fast Fact: 88.4% felt completely safe receiving care at CCMB.
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question. Data exclude respondents who did not respond to this question.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Fast Fact: 86.3% felt that care providers at CCMB did everything they could to treat their cancer.
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba

within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question. Data exclude non-response.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Fast Fact: 92.8% felt they were treated with dignity and respect.
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question. Data exclude non-response.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Fast Fact: 93.6% felt that their health care providers were usually or always aware of their test results.
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question. Data exclude non-response.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Page 71

Fast Fact: The population of Manitoba was 1.28 million at the time of the 2016 census. 18% of all Manitobans identified as First Nations, Métis, or Inuit.
Timeframe: January 1 - December 31, 2016.
Reference: 106
Data Source: Statistics Canada.

Fast Fact: First Nations women were more likely than all other Manitoban women to be diagnosed with breast cancer at a later stage.
Timeframe: January 1, 1984 - December 31, 2008.
Reference: 107
Data Source: Federal Indian Register; Manitoba Health, Seniors and Active Living medical claims and population registry; Manitoba Cancer Registry.

Fast Fact: First Nations women were more likely to be diagnosed with an invasive cervical cancer than all other Manitoban women.
Timeframe: January 1, 2003 - December 31, 2008.
Reference: 108
Data Source: Federal Indian Register; CervixCheck: Registry; Manitoba Health Medical Claims, Manitoba Health, Seniors and Active Living medical claims and population registry; Manitoba Cancer Registry.

Page 72

Fast Fact: The 2016 census shows that nearly 11% of Manitobans were over the age of 70 (n=134,065). Females made up the largest proportion of this age group (57%). Since 2006, the number of individuals over the age of 65 has increased by 23%.
Timeframe: January 1 - December 31, 2016.
Reference: 106
Data Source: Statistics Canada.

Fast Fact: 45% of Manitobans diagnosed with cancer are over the age of 70.
Timeframe: January 1 - December 31, 2016.
Data Source: Manitoba Cancer Registry.

Fast Fact: At the 2016 census, 249,625 Manitobans identified being born outside Canada.
Timeframe: January 1 - December 31, 2016.
Reference: 106
Data Source: Statistics Canada.

Fast Fact: Over 63,000 individuals recently immigrated to Manitoba between 2011 and 2016.
Timeframe: January 1, 2011 - December 31, 2016.
Reference: 106
Data Source: Statistics Canada.

Page 73

Fast Fact: Over a one-year period there were 1,639 interpreter requests through CCMB across 42 languages.
Timeframe: April 1, 2017 - March 31, 2018.
Data Source: Winnipeg Regional Health Authority Language Access Program; Winnipeg Regional Health Authority Indigenous Health.

Fast Fact: The most common language requests in 2017 were:

1. **Cantonese (13%)**
2. **Mandarin (12%)**
3. **Punjabi (9%)**
4. **Russian (7%)**
5. **Tagalog (7%)**
6. **Vietnamese (7%)**
7. **Arabic (5%)**
8. **Cree (5%)**
9. **Polish (5%)**
10. **Spanish (4%)**
11. **Korean (3%)**
12. **High German (3%)**
13. **French (3%)**
14. **Portuguese (3%)**
15. **Tigrinya (3%)**
16. **Other (11%)**

Timeframe: April 1, 2017 - March 31, 2018.
Data Source: Winnipeg Regional Health Authority Language Access Program; Winnipeg Regional Health Authority Indigenous Health.

Fast Fact: The 2016 Ambulatory Oncology Patient Satisfaction Survey revealed that nearly 34% of respondents never or only sometimes got the help they needed to figure out how to pay for any extra costs for their cancer care.
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question. Data exclude respondents who identified that this question was not applicable to them and those who did not respond to the question.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Page 74

Fast Fact: 51% of Manitoban respondents who had anxiety and fears when they were first told about their illness did NOT receive a referral to a care provider to help them with these anxieties and fears (National Experience = 51%).
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question. The numerator includes responses for 'No' and "Yes, somewhat", as these indicate gaps in information provision. Data exclude respondents who identified that they had no anxiety or fears and where no response was provided.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Fast Fact: 67% did not receive all the information they needed on changes to their relationship with their spouse/ partner. (National =67%).
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question. The numerator includes responses for 'No' and "Yes, somewhat", as these indicate gaps in information provision. Data exclude respondents who identified that this question did not apply to them and where no response was provided.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Fast Fact: 61% did not receive all the information they needed around changes to their emotions. (National = 57%).
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question. The

numerator includes responses for 'No' and "Yes, somewhat", as these indicate gaps in information provision. Data exclude respondents who identified that this question did not apply to them and where no response was provided.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Fast Fact: 59% did not receive all the information they needed on changes to their sexual activity. (National 55%).
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question. The numerator includes responses for 'No' and "Yes, somewhat", as these indicate gaps in information provision. Data exclude respondents who identified that this question did not apply to them and where no response was provided.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Fast Fact: 56% did not receive all the information they needed on changes in their work or usual activities. (National = 51%)
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question. The numerator includes responses for 'No' and "Yes, somewhat", as these indicate gaps in information provision. Data exclude respondents who identified that this question did not apply to them and where no response was provided.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Fast Fact: 40% did not receive all the information they needed on changes to their physical appearance. (National =37%).
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question. The numerator includes responses for 'No' and "Yes, somewhat", as these indicate gaps in information provision. Data exclude respondents who identified that this question did not apply to them and where no response was provided.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

Fast Fact: 46% did not receive all the information they needed about their nutritional needs. (National = 43%).
Timeframe: July 1 - December 31, 2015.
Additional Notes: This survey sampled patients who had been seen at CancerCare Manitoba within the six-month period (July 1 - December 31, 2015) and who were still alive as of February 1, 2016. The denominator is all respondents who provided a response to this question. The numerator includes responses for 'No' and "Yes, somewhat", as these indicate gaps in information provision. Data exclude respondents who identified that this question did not apply to them and where no response was provided.
Data Source: NRC Health Ambulatory Oncology Patient Satisfaction Survey (2016).

GENERAL TERMS AND DEFINITIONS

Cancer: Codes, Classifications and Categories

Cancer is a term used to describe a group of 200+ diseases. The common features of these diseases is that abnormal cells divide without (i.e., not responding to) our bodies' usual biological growth control mechanisms. They are then able to invade surrounding tissue and spread to other parts of the body (metastasize) though our blood and lymph systems. Most types of cancer are name for the organ they start in, and /or the type of cell that is involved. For example, if a cancer starts in the breast it is called "breast cancer" even though it may have spread to other organs such as the liver, bone or brain – these are secondary or metastatic sites. In this report, national standards for coding and classifying cancer information have been used. The Manitoba Cancer Registry uses the International Classification of Diseases for Oncology, 3rd edition (ICDO-3), which includes the anatomic location of the tumor as well as a pathologic classification (known as "morphology"); deaths are coded in the International Classification of Diseases, 9th edition (ICD 9) up to 2001 and the 10the edition (ICD-10) from 2002 to present.

Cancer Category	Incidence (ICD 0-3)	Mortality (ICD-9) (up to 2001)	Mortality (ICD-10) (from 2002 to present)
All invasive cancers	C00 – C97 with invasive morphology (/3), excluding non –melanoma skin cancers (C44 with morphology outside of 8720-8790)	140-208, excluding non-melanoma skin cancers (173)	C00 – C97, excluding non-melanoma skin cancers (C44)
Lung	C34 with invasive morphology (/3)	162	C34
Colorectal	C18 – C20, C26.0 with invasive morphology (/3)	153,154.0-154.1, 159	C18-C20, C26.0
Breast *(females only)*	C50 with invasive morphology (/3)	174	C50
Prostate	C61 with invasive morphology (/3)	185	C61

Notes: *Lymphomas, which may be found in various organs (but with morphology code 9590-9989), are assigned to the lymphoma category instead of the anatomic site where they arise. Stage at diagnosis was assigned using the collaborative staging system (CS, version 2), which can be translated to American Joint Commission on Cancer (AJCC) TNM categories. Please see the National Cancer Institute's online dictionary of terms, www.cancer.gov/directionary, for more information on other cancer terms.*

Geography: Categories

Only Manitoba residents are included in the analysis. Regional Health Authorities (RHAs) are defined by the Manitoba government, and are responsible within the context of broad provincial policy direction, for assessing and prioritizing needs and health goals, and developing and managing an integrated approach to their own health care system. For brevity, a short-hand form is used to denote the new RHAs throughout this report:

- Northern RHA - Northern Regional Health Authority
- Southern RHA – Southern Health – Santé Sud
- Prairie Mountain RHA - Prairie Mountain Health
- Winnipeg RHA - Winnipeg Regional Health Authority (includes Churchill)
- Interlake-Eastern RHA - Interlake-Eastern Regional Health Authority

ACKNOWLEDGMENTS

Led by CancerCare Manitoba's System Performance team, our dedicated staff and partners created the 2019 Manitoba Cancer System Performance Report – a high quality and comprehensive report providing insight into the cancer care system in Manitoba.

CancerCare Manitoba System Performance Report Leads:

Dr. Donna Turner
Provincial Director
Population Oncology

Carrie O'Conaill
System Performance Specialist
System Performance

CancerCare Manitoba Cancer System Performance Indicators Working Groups

Management Advisory Forum

Dr. Zeb Aurangzeb
Health Economist
Epidemiology and Cancer Registry

Venetia Bourrier
Interim Senior Coordinator, Clinical Practice Guideline Initiative and Lead Policy Officer
Director,
Quality, Patient Safety and Risk

Oliver Bucher
Team Lead
Epidemiology and Cancer Registry

Kelly Bunzeluk
Director
Cancer Screening Programs

Dr. Piotr Czaykowski
Chief Medical Officer

Dr. David Dawe
Medical Oncologist

Dr. Kathleen Decker
Scientist
Research Institute in Oncology and Hematology

Sheila Fukumura
Cancer Registry Manager
Epidemiology and Cancer Registry

Anita Gadhok
Strategic Officer

Lorena Gerl
Program Leader
Patient and Family Support Services

David Glover
Manager
Health Information Services

Janice Grift
Manger
Diagnostic Imaging Quality and Process Improvement
Winnipeg Regional Health Authority

Sandra Iftody
Radiation Therapy Operations Manager
Radiation Oncology Program

John Ioculano
Director
Health Infrastructure Program

Nina Kostiuk
Director
Nursing

Dr. Rashmi Koul
Radiation Oncologist
Clinical Lead,
Radiation Oncology Program

Ruth Loewen
Director
Community Oncology Program

Gail Noonan (2006-2018)
Cancer Registry Manager
Epidemiology and Cancer Registry

Paul Penner
Chief Clinical Operations Officer

Dr. Matthew Seftel
Medical Oncologist
Clinical Lead,
Medical Oncology and Haematology

Dr. Helmut Unruh
Surgical Oncologist
Clinical Lead,
Surgical Oncology

Data Specialists Forum

Riza Barcelo
Financial Analyst
Finance

Oliver Bucher
Team Lead
Epidemiology and Cancer Registry

Trevor DePape
Patient Management
Radiation Therapy

Jonathon Drabik
Project Manager
System Performance

Katie Galloway
Programmer Analyst
Epidemiology and Cancer Registry

Elizabeth Huynh
Projects and Evaluation Coordinator
Underserved Populations Program

Julie Njegovan
Quality Coordinator
Shared Health Diagnostics

Jenn McBurney
Provincial Surgery Coordinator
WRHA Surgery Program

Grace Musto
Senior Programmer Analyst
Epidemiology and Cancer Registry

Charlene Muzyka
Health Outcomes Analyst
Epidemiology and Cancer Registry

David Phillips
Facilitator
Quality, Patient Safety and Risk

Iresha Ratnayake
Analytic Lead, Surgical Quality Indicators
Epidemiology and Cancer Registry

Catarina Reis
Diagnostic Imaging Referral Coordinator Tracker
Shared Health

Ili Slobodian
Program Manager
Community Oncology Program

Vesna Svitlica
System Performance Data Lead

The team is grateful for analysis, advice, and clinical interpretation provided by CancerCare Manitoba department staff and external partners:

Clinical and Program Staff

Dr. Shantanu Banerji
Medical Oncologist

Ginette Bazin (2016-2019)
Communications Lead

Kristin Bergen (2012-2019)
Program Manager
BreastCheck Screening Program

Tara Carpenter-Kellett
Manager, Continuity of Care
Community Oncology

Dr. Harvey Chochinov
Senior Scientist
Research Institute in Oncology and Hematology

Laura Coulter
Manger
Screening Programs

Dr. Geoffrey Cuvelier
Pediatric Oncologist

Dr. Vi Dao
Medical Oncologist

Dr. David Dawe
Medical Oncologist

Dr. Erin Dean
Medical Oncologist
Dr. John Doyle
Medical Oncologist
Pediatric Section Head

Kathryn Dyck
Manager,
Clinical Trials Unit

Judy Edmond (2015-2018)
Senior Strategic and Sustainability Officer

Dr. Joel Gingerich
Medical Oncologist

Dr. Benjamin Goldenberg
Medical Oncologist

Elizabeth Harland
Cancer Prevention Project Coordinator
Epidemiology and Cancer Registry

Dr. Pamela Hebbard
Surgical Oncologist

Rebekah Hiebert
Pediatric Research Specialist
Clinical Trials Unit

Susan Kapilik
Volunteer andCommunity Support Coordinator
Underserved Populations Program

Dr. Anne Katz
Clinical Nurse Specialist and Certified Sexuality Counselor
Patient and Family Support Services

Kristen Martin
Data Manager,
Provincial Oncology Drug Program
Pharmacy Department

Sandi McFall
Centralized Referral Team Coordinator, Patient Services
Community Oncology

Dr. Leonard Minuk
Hematologist and Medical Oncologist

Dr. Catherine Moltzan
Hematologist and Medical Oncologist

Kristie Morydz
Nurse Practitioner
Nursing

Jennifer Moyer
Staffing and Operations Manager
Radiation Therapy

Dr. Sri Navaratnam
President and CEO

Dr. Kristjan Paulson
Hematologist and Medical Oncologist

Elizabeth Payne
Supportive Care Coordinator
Community Oncology Program

Dr. Marshall Pitz
Head, Clinical Research

Zenith Poole
Provincial Navigation Lead
Community Oncology Program

Ian Scott
Psychosocial Oncology Clinician
Adolescent and Young Adult Program
Patient and Family Support Services

Morgan Stirling
Projects and Evaluation Coordinator, Underserved Populations Program

Dr. David Swajcer
Hematologist and Medical Oncologist

Kimberly Templeton
Program Manager
CervixCheck Screening Program

Allison Wiens
Education and Liaison Nurse – Health Equity, Underserved Populations Program

Partners

Riaz Alvi
Director, Epidemiology and Performance Measurement
Saskatchewan Cancer Agency

Rebecca Austman
Regional Manager of DI Technology with Clinical Engineering Program
WRHA

Dr. Richard Baydack
Director
Manitoba Health, Seniors and active Living

Peter Chackowsky
Director of Quality, Safety and Client Services
Shared Health

Wayne Clark
Director, Indigenous Health - Patient Services
Winnipeg Regional Health Authority

Dr. Claire de Oliveira
Expert Lead, Cancer Economics
Canadian Partnership Against Cancer
Health Economist
Centre for Addiction and Mental Health

Dr. Craig Earle
Vice-President, Cancer Control
Canadian Partnership Against Cancer

Dr. Marco Essig
Medical Director DI Program,
Winnipeg Regional Health Authority

Dr. Mike Harlos
Medical Director
Winnipeg Regional Health Authority
Palliative Care Program

Nathan Hoeppner
Director Analytics
Information Management and Analytics
Manitoba Health Seniors and Active Living

Dr. Amin Kabani
Laboratory Services Chief Medical Officer
Shared Health

Raylene McGhee
Regional Program Director
Diagnostic Imaging WRHA

Kellie Navitka
Policy Analyst
Manitoba Health, Seniors and Active Living

Dr. Abdul Sokoro
Lead Clinical Scientist and Clinical Biochemist
Diagnostic Services
Shared Health

Qunfeng Wang
Quality Specialist
Data and Metrics
Shared Health

Joy Wei
Epidemiologist
Manitoba Health Seniors and Active Living

Dr. Kim Wiebe
Medical Director
MAID Program

Statistics Canada
Health Statistics Division

NRC HEALTH
Shilpa Patel
Director, Customer Success and Privacy Officer
Service and Operations

Kevin Khan
Business Development Manager
Business Development

Dorothy Hu
Project Specialist
Service and Operations

A very special thanks for report production goes to:

Diane Lawless
Publications Coordinator
Communications

Madeline Kells
Administrative Officer
Population Oncology

Manitobans who shared their stories and images.

All the people who collect and manage cancer-related data.