The Impact of COVID-19 on the Incidence of Invasive Cancer and on Radiation Therapy in NL

Objective

To determine whether the diagnosis of new invasive cancers had decreased during COVID-19 and whether radiation therapy volume was maintained.

Practice Points

1. Colorectal cancer (CRC) screening started in 2012 and may be associated with a subsequent reduction in the diagnosis of invasive cancer.

2. The incidence of lung cancer is high in NL, associated with the relatively high incidence of smoking.

3. Mammography screening for breast cancer has been undertaken in many females 50–70 years old and may be associated with increased incidence of invasive breast cancer, but a reduction in breast cancer deaths.

4. COVID-19 resulted in substantial reduction of admissions to hospital for surgery and for CT scanning.

Data (PI: Dr. T. Stuckless)

The annual incidence of invasive colorectal, lung and breast cancer was obtained from the NL Cancer Care Program Solid Tumor Registry for years 2015-2020, and the volume of radiation treatments was obtained for 2016–2020.

Radiation indications included palliative, radical and adjuvant. In 2019, the number of palliative courses was 638 (38%), radical courses 625 (37%), and adjuvant 427 (25%).

The nine months during COVID-19, Apr–Dec 2020, were compared to the same period pre-COVID-19 in 2019.

Results

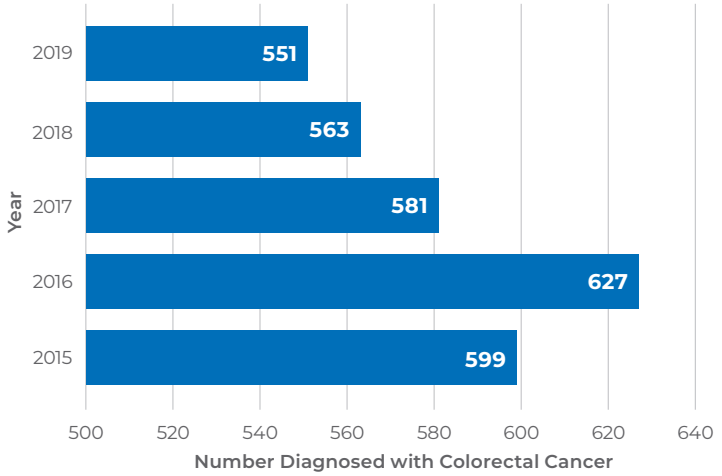

Figure 1. Number of People Diagnosed With Colorectal Cancer From 2015–2019

- Comparing the number of invasive CRC in 2018–19 to 2015–16 there was a 9.1% reduction.

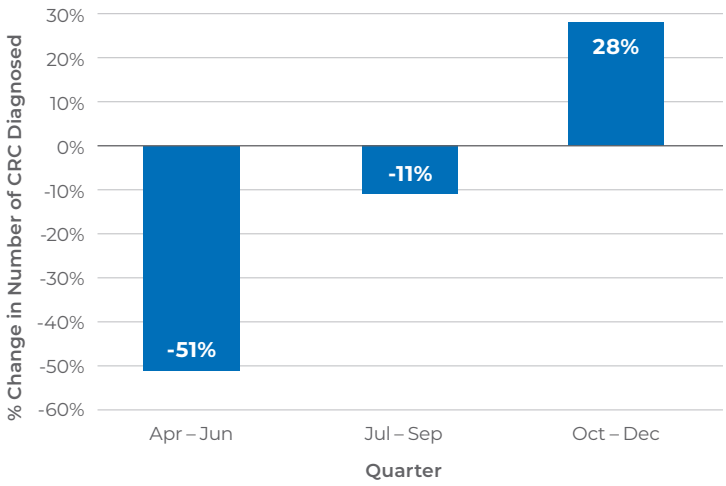

Figure 2. Change in the Number of CRC Diagnosed by Quarter During COVID-19 Compared to the Comparable Quarters in 2019

- A large reduction in number diagnosed with CRC occurred during the first quarter of COVID-19, but during the initial nine months, the overall reduction was 16% (355 CRC during COVID-19 vs. 424 pre-COVID-19).

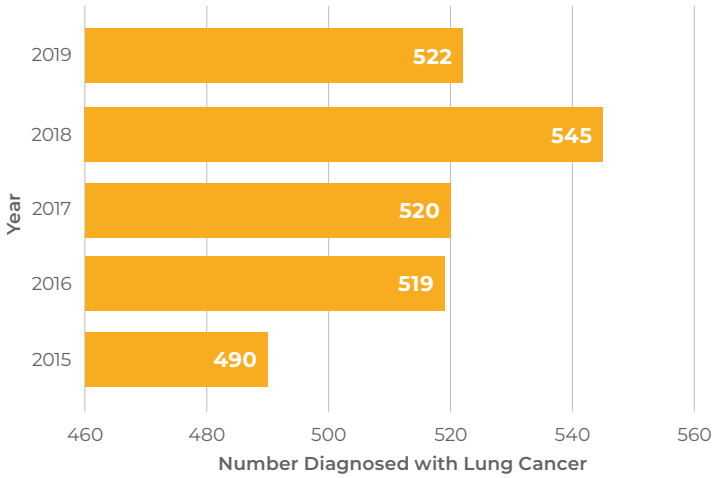

Figure 3. Number of People Diagnosed With Lung Cancer From 2015–2019

- Comparing the number of lung cancers diagnosed in 2018–19 to 2015–16, there was an increase of 2.7%.

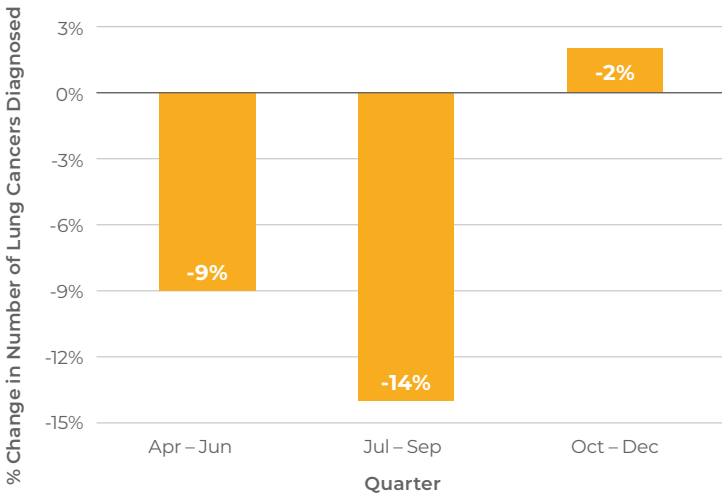

Figure 4. Change in the Number of Lung Cancers Diagnosed During COVID-19 Compared to the Comparable Quarters in 2019

- During the initial nine months of COVID-19, there was 6.8% reduction in the number of lung cancers diagnosed, compared to the comparable period in 2019 (372 vs. 399).

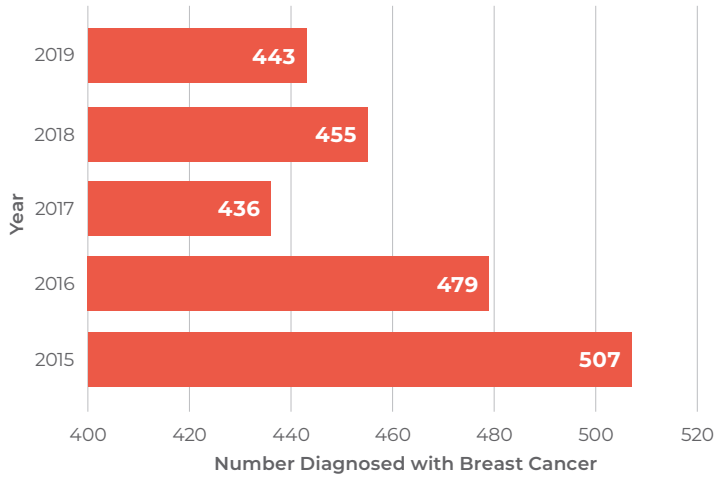

Figure 5. Number of People Diagnosed With Breast Cancer in 2015–2019

- Comparing the number of breast cancers diagnosed in 2018–19 to 2015–16, there was a reduction of 7.7%.

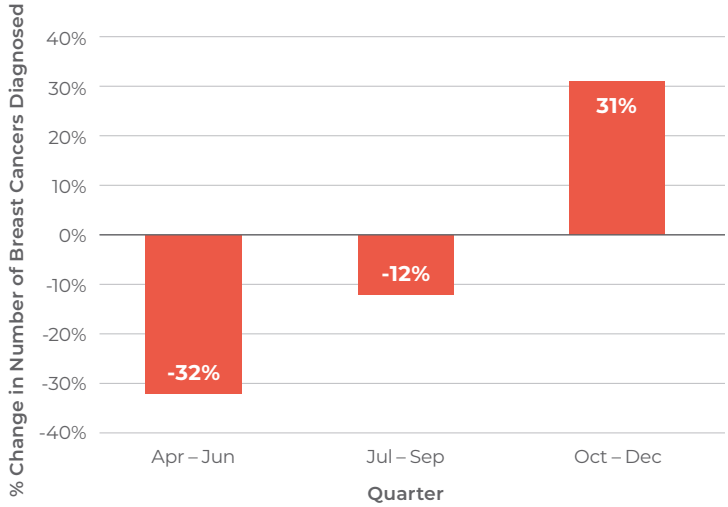

Figure 6. Change in the Number of Breast Cancers Diagnosed During COVID-19 Compared to Comparable Quarters in 2019

- During the first nine months of COVID-19, there was 5% reduction in the number of breast cancers diagnosed, compared to comparable quarters in 2019 (325 vs. 342).

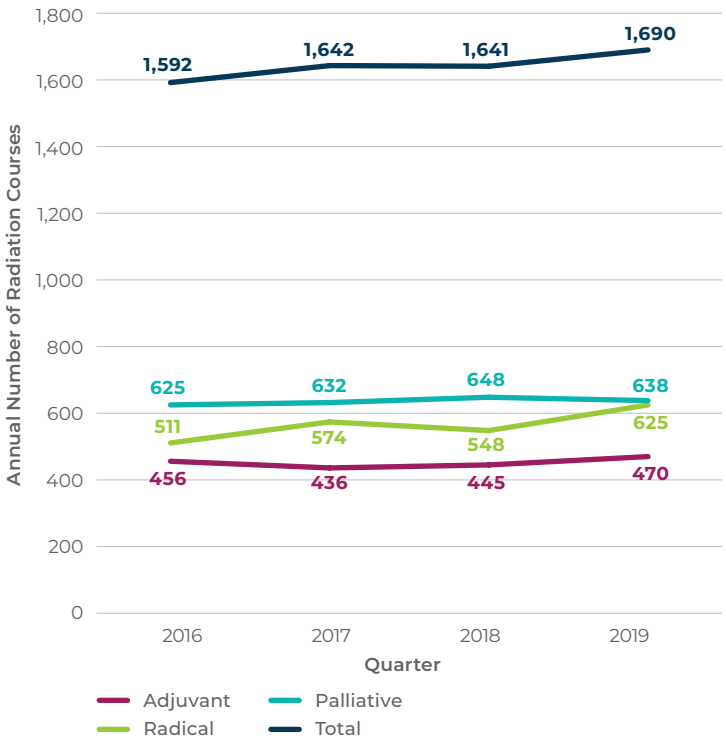

Figure 7. The Annual Number of Radiation Courses by Indication Undertaken at the Cancer Care Program from 2016–2019

- The total number of radiation courses has increased in 2019 by 6.2% compared to 2016, driven by 22.3% increase in courses for radical therapy.

Figure 8. Change in the Number of Radiotherapy Courses during COVID-19 Compared to the Comparable Quarters in 2019

- During the first nine months of COVID-19, the total number of courses of radiation therapy increased by 2.4% compared to the nine months April to December 2019.
- When analyzed by indication, there was 8.8% increase in courses for adjuvant therapy, 4.1% increase in courses for palliation, and 3.7% decrease in radical radiation courses.
- During the first three months of COVID-19, the total number of radiation courses increased by 0.9%.

Conclusions

1. During the initial nine months of COVID-19, there was a 16% reduction in the number of CRCs diagnosed, 6.8% reduction in lung cancers, and 5% reduction in breast cancers.
2. The volume of radiation courses, whether for palliative, radical or adjuvant indications, was maintained during COVID-19.
3. Longer follow-up plus information on stage at diagnosis of invasive cancer will be necessary to determine the overall effect of COVID-19 on cancer.