



Clinical Focus on Lung Cancer

A snapshot of lung cancer for Ontario health care providers and managers

**Driving quality, accountability and innovation
throughout Ontario's cancer system**



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CLINICAL FOCUS ON LUNG CANCER

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Introduction

This monograph on lung cancer has been prepared to provide information on patterns of practice to those directly involved in the provision of care to lung cancer patients. As well, it should be helpful to those who are responsible for managing aspects of the cancer system that impact on the care that lung cancer patients receive across the province of Ontario. The practice patterns are shown against the backdrop of the evidence-based guidelines developed by the Lung Disease Site Group of Cancer Care

Ontario's Program in Evidence-based Care. In addition to information on patterns of practice, this monograph provides information on the timeliness of access to care, as well as a brief overview of the incidence and mortality of lung cancer, and the trends in the main risk factor for developing lung cancer, namely smoking. In brief, it provides a snapshot of the quality of care for lung cancer patients in the province of Ontario. It is hoped that this monograph will assist those responsible for care delivery to achieve the best possible results for patients with a diagnosis of lung cancer.

Incidence of Lung Cancer

Lung cancer is the most common cause of death due to cancer in Canada. In 2003, it is estimated that there will be 21,100 new cases and 18,800 deaths from lung cancer. In Ontario, it is estimated that there will be 7,500 new cases and 6,300 deaths from lung cancer. Figure 1 shows the incidence of lung cancer by gender over the past 10 years. Although the overall incidence is higher in men, there has been a steady decrease in the incidence of lung cancer in men in the past 10 years. In contrast, the incidence rate among women has been steadily increasing.

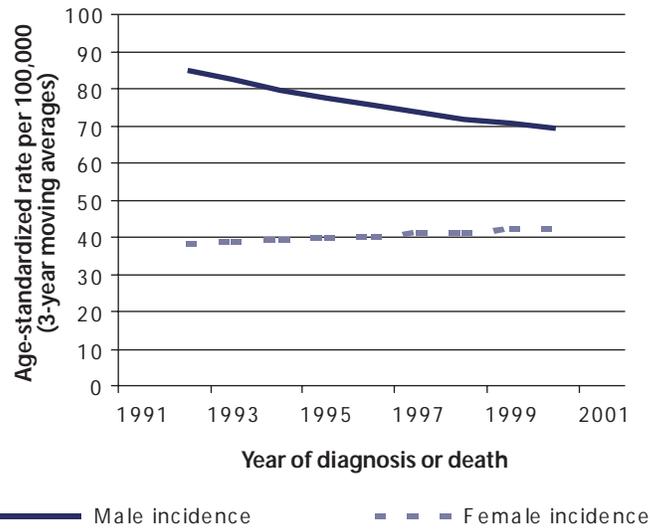
Risk Factors

Lung cancer is the most preventable of all human cancers. Cigarette smoking is the main cause of lung cancer and it should be no surprise to anyone that changes in the incidence of lung cancer run parallel to changes in smoking habits. Individuals who have been smoking for the past several decades are the ones now being diagnosed with lung cancer. Twenty years ago there were record numbers of women, including teenagers, who were smoking regularly. The number of men smoking at that time, in all age groups, had begun to decline. The trends in smoking rates among men and women over the past decade are shown in Figure 2 and Figure 3. As fewer people are smoking today, it is anticipated that lung cancer rates will be lower in the future. Nonetheless, aggressive anti-smoking measures must continue, as the proportion of the population smoking is still approximately 19%. Factors helping to reduce smoking include strict anti-smoking bylaws, cigarette taxation, smoking cessation programs, and school and public education programs.

Mortality from Lung Cancer

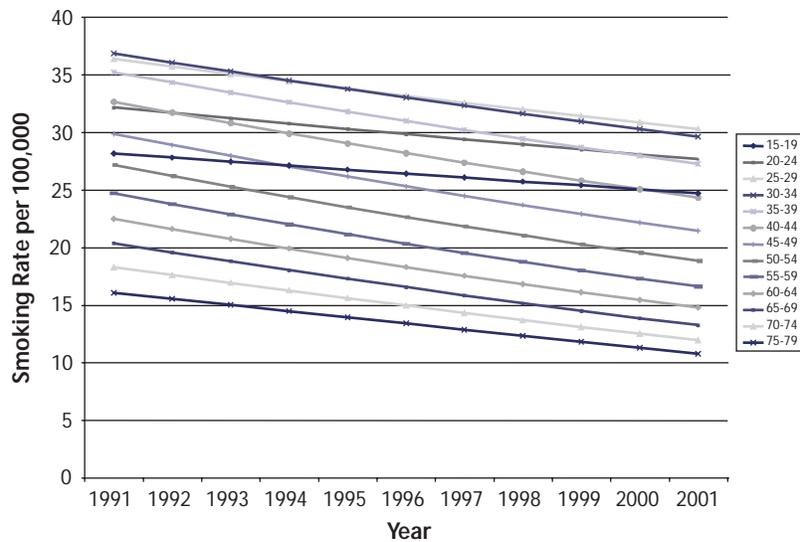
Figure 4 shows the mortality rate (death rate per 100,000 population) from lung cancer for both men and women over the past decade. The graph for mortality is similar to that for incidence, in that men show a decline in mortality, whereas women show an increasing mortality rate.

Figure 1 Lung Cancer Incidence Rates in Ontario, 1991–2001



Source: Cancer Care Ontario (Ontario Cancer Registry, 2003)

Figure 2 Smoking Rates for Lung Cancer by Age — Male



Source: Cancer Care Ontario (Ontario Cancer Registry, 2003)

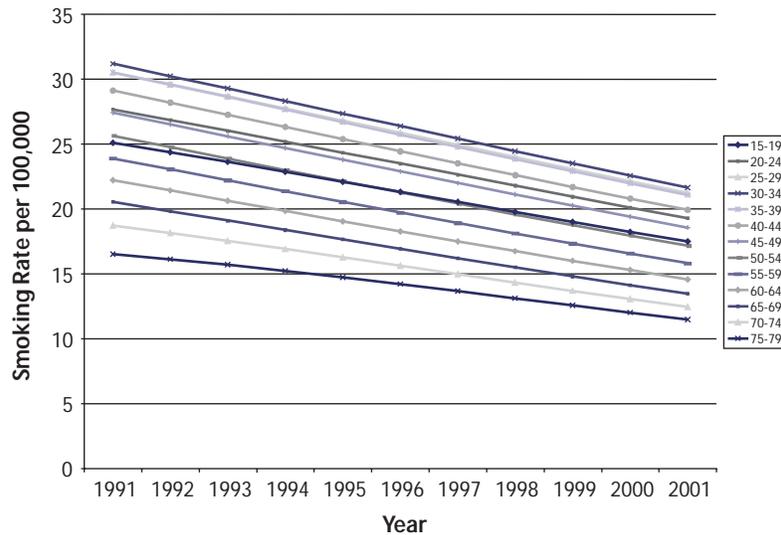
Lung Cancer Survival

The overall survival rate for lung cancer is poor, in part because it is most often diagnosed at an advanced and incurable stage. Only about 25% of all lung cancers are, potentially, surgically resectable. Approximately 35% of patients have extension of cancer to involve lymph nodes centrally in the chest (mediastinal lymph nodes) and about 40% have cancer spread outside of the chest. Figure 5 shows that the two-year survival does not vary much between regions, although the survival in the south is significantly worse than the rest of Ontario, while survival in the east is significantly better. Survival for all of Ontario is indicated by the blue horizontal line.

Assessing Consistency of Practice Against Evidence-based Recommendations

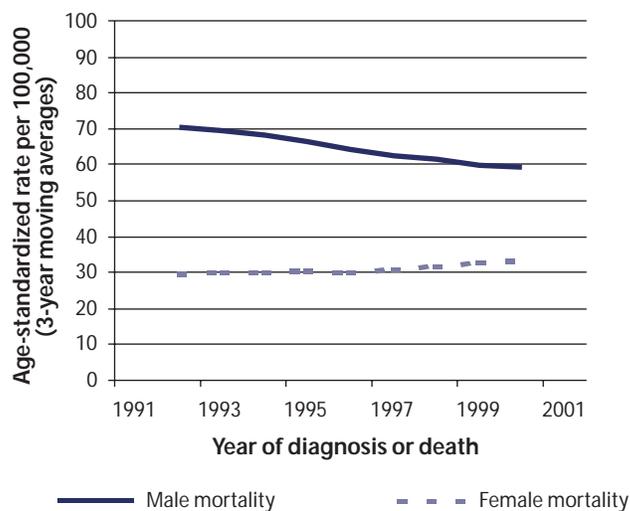
The recent development of a software called DS-Web has made it possible to rapidly interrogate a number of administrative databases, including the Ontario Cancer Registry, the Oncology Patient Information System (OPIS) and the New Drug Funding Program (NDFP) database. Amongst other things, DS-Web can rapidly determine the volume of clinical activity in any cancer centre across the province and analyze radiotherapy and systemic therapy clinical practice patterns. Where stage information is available, it is now possible to describe the stage-specific treatment practices. In the future it should be possible to assess stage-specific survival.

Figure 3 Smoking Rates for Lung Cancer by Age — Female



Source: Cancer Care Ontario (Ontario Cancer Registry, 2003)

Figure 4 Lung Cancer Mortality Rates in Ontario, 1991–2001



Source: Cancer Care Ontario (Ontario Cancer Registry, 2003)

In the paragraphs that follow, the recommendations for treatment by type and stage of lung cancer are described and then the actual clinical practices are displayed for each of the regional cancer centres.

For more information on DS-Web, send inquiries to DS-Web@cancercare.on.ca.

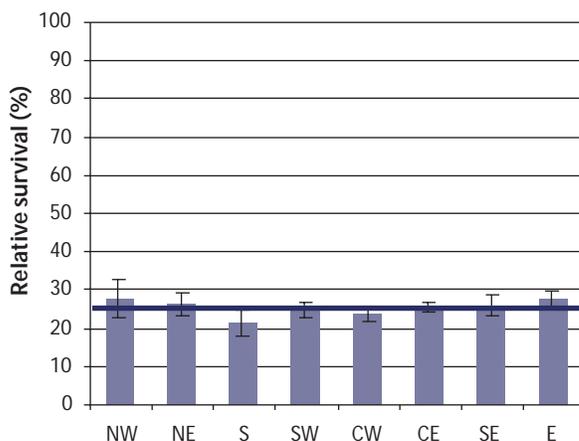
Practice Guidelines and the Treatment of Lung Cancer

The Provincial Lung Disease Site Group (DSG) is one of 14 DSGs that develop evidence-based practice guidelines and evidence summaries as part of Cancer Care Ontario's Program in Evidence-Based Care. The Lung DSG has 31 members from across the province representing the disciplines of thoracic surgery, radiation therapy and systemic therapy. As well, the DSG has a medical sociologist, two research coordinators and two patient representatives. The DSG has completed and published 14 guidelines on various aspects of treatment for different forms and stages of lung cancer. These guidelines can be found on Cancer Care Ontario's Web site, www.cancercare.on.ca/access_PEBC.htm. The details found in these guidelines are briefly summarized below.

Management of Early Stage Non Small Cell Lung Cancer (NSCLC)

For those patients presenting with early stage lung cancer (Stages I and II), the usual treatment is surgical removal (resection), assuming the patient can tolerate an appropriate operation. For those individuals who have very poor pulmonary function or other major

Figure 5 Lung Cancer Estimated* Two-Year Relative Survival † by Region, Age-Adjusted, 2000–2001



* Estimated with Brenner's period method, which estimates survival of all cases under follow-up during 2000-2001, adjusted for age

† Bars = survival estimates, I = 95% confidence intervals

Source: Cancer Care Ontario (Ontario Cancer Registry, 2003)

co-morbidities that prevent pulmonary resection, local radiotherapy may be used to control the tumour. For those patients undergoing surgical resection, roughly half survive five years. The survival rate depends on factors such as the size of the tumour, the extent of lymph node involvement by cancer found at surgery and the tumour histology. In the most favourable situation — a tumour less than three centimeters in maximum diameter, without spread to intrapulmonary lymph nodes and with squamous histology — the survival is approximately 70%–80% at five years. Some patients are sent for consideration of adjuvant chemotherapy or radiotherapy after complete resection of a lung cancer. The Lung DSG, which has reviewed the evidence for adjuvant therapies, has concluded that there are no data to support the use of radiotherapy in patients who have had a complete resection of their tumour.

The data on the use of adjuvant chemotherapy is conflicting, but recent studies suggest that there may be a small survival benefit.

Management of Locally Advanced NSCLC

Patients are most commonly referred to a cancer treatment facility with a diagnosis of cancer when the disease is considered to be inoperable. Lung cancer is inoperable but locally advanced when it has extended beyond what a surgeon can resect for cure, but is still confined to the chest (Stage III). For those patients who have mediastinal lymph nodes involved by tumour (lymph nodes located around the central structures in the chest), but who have a good performance status and have not lost more than 5% of their usual body weight in the preceding three months, the evidence supports the use of a combination of chemotherapy and radical radiotherapy.

Observations on the Treatment of Locally Advanced NSCLC at Regional Cancer Centres

The data displayed below was extracted from several of Cancer Care Ontario's administrative databases — the Oncology Patient Information System and the New Drug Funding Program's databases — using DS-Web. In order to evaluate practice relative to evidence-based recommendations, it was necessary to select only those cases for whom stage information was recorded in the chart electronically. The capture

of stage information has improved at all cancer centres but is still incomplete. This accounts for the modest number of cases seen in some analyses.

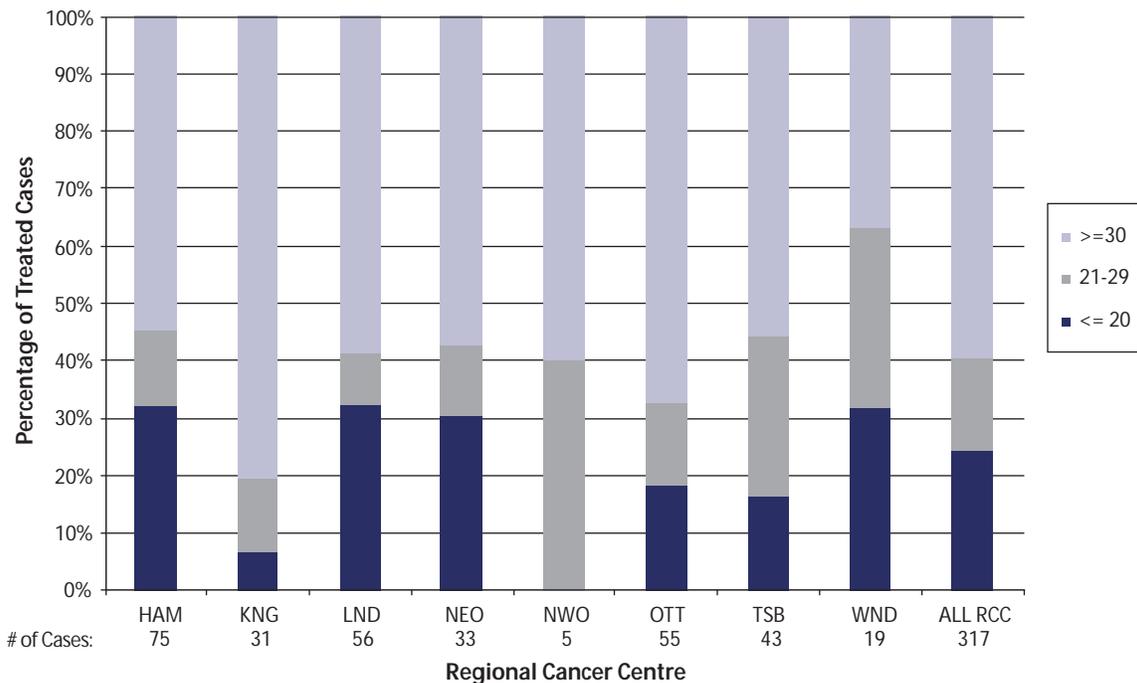
Radiation Therapy

Figure 6 provides information on the radiotherapeutic management of Stage III non-small cell lung cancer (NSCLC) patients treated with curative intent at each regional cancer centre. The recommended amount of radiotherapy (60 Gray) requires six weeks of therapy and 30 fractions (treatments). A boost of radiation may be given so that more than 30 fractions

could be given. While most centres employ this approach, some use fewer fractions. This may reflect the fact that there are other radical dose schedules in use including 50Gy in 20 fractions and even 48Gy in 12 fractions. The lower fraction number may also be due to errors of coding the intent of treatment, failure to complete the prescribed course of radiation therapy, a belief that lesser amounts of radiotherapy may be sufficient, or a case mix with a greater proportion of poor performance status patients who would not be candidates for radical radiotherapy.

Legend for Figures 6–10
 Ham = Hamilton, KNG = Kingston, LND = London, NEO = Northeastern Ontario, NOW = Northwestern Ontario, OTT = Ottawa, TSB = Toronto Sunnybrook, WND = Windsor, RCC = Regional Cancer Centre

Figure 6 Percentage of Stage III NSCLC Treated with Curative Intent Showing Number of Radiation Treatments, Jan – Dec 2002



Source: Cancer Care Ontario (Oncology Patient Information System, 2003)

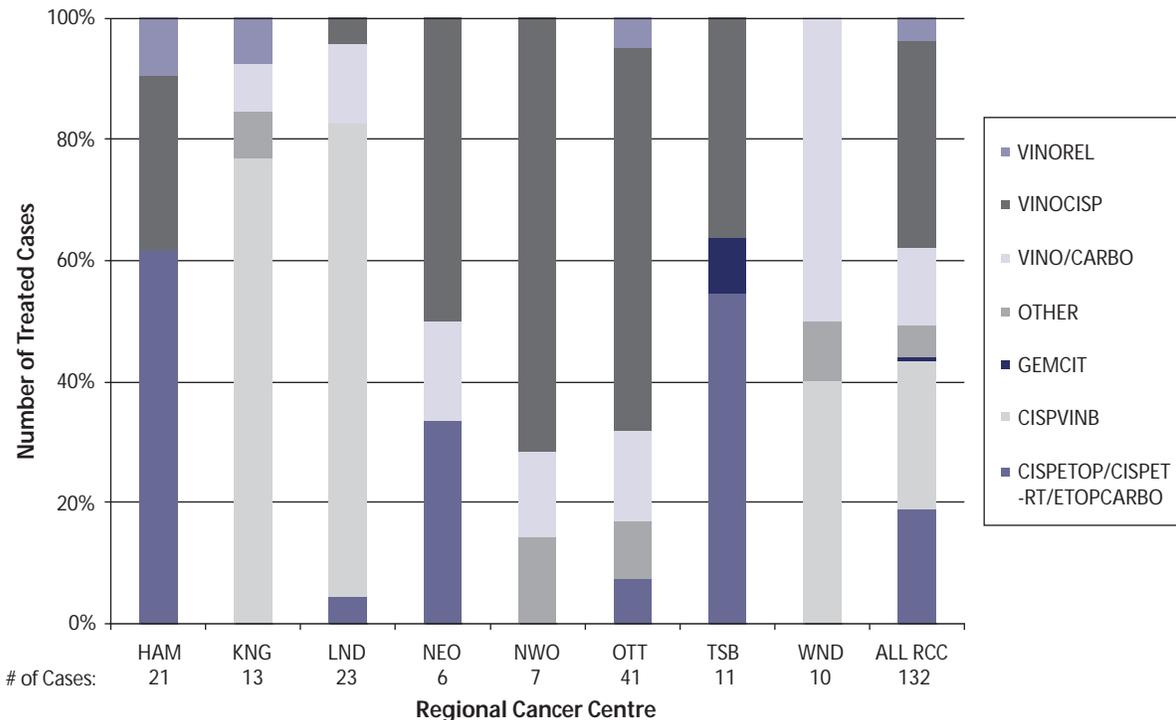
Chemotherapy

The chemotherapy used in the combined modality approach to locally advanced lung cancer can be one of several different regimens, but should include the drug cisplatin. It has been demonstrated that a survival advantage can be achieved when both chemotherapy and radiotherapy are used together. The Provincial Lung DSG does not recommend a specific chemotherapy regimen, but there are a number of chemotherapy regimens that are acceptable. The initial trials, demonstrating increased survival with combined

modality therapy, used the two-drug combination vinblastine and cisplatin (CISPVINB). A trial performed by the Southwest Oncology Group (SWOG), in concert with the National Cancer Institute of Canada (NCIC), used etoposide-cisplatin (CISPET) for the treatment of Pancoast tumours (tumours at the apex of the lung), and demonstrated enhanced local control and improved survival. Vinorelbine-cisplatin (VINOCISP) has been shown to be one of the most effective regimens available for the treatment of advanced disease, and it has been tested in an adjuvant trial through

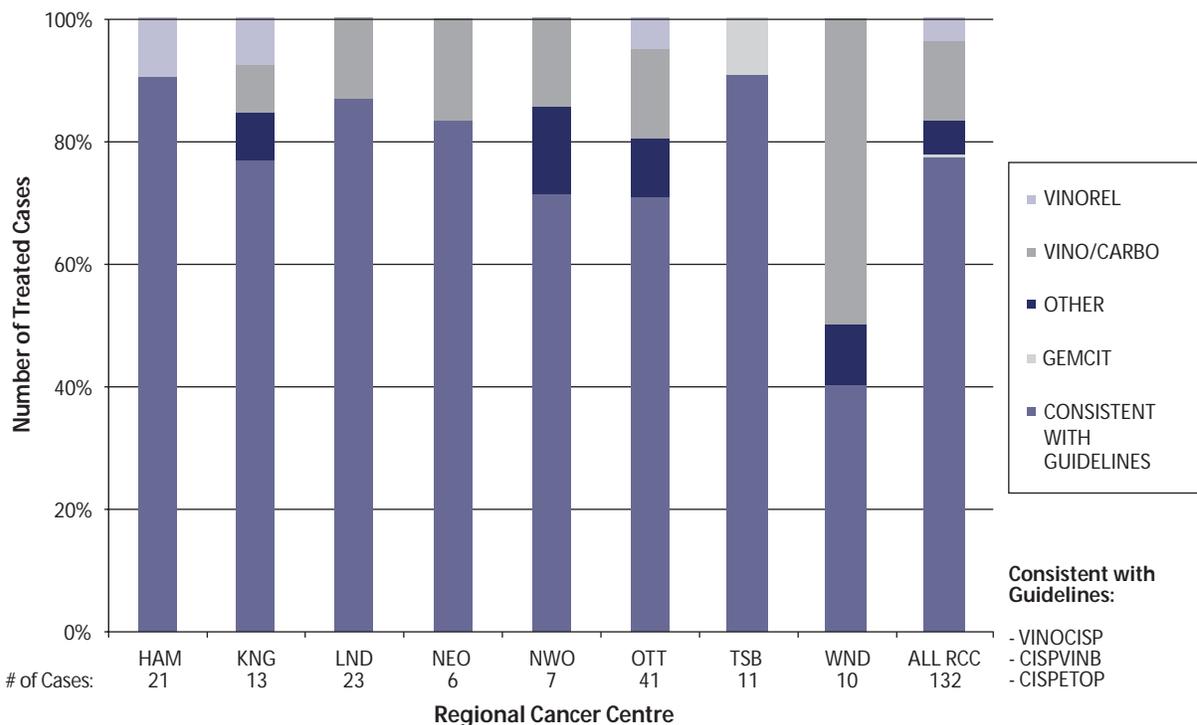
the NCIC. Based on these trial results, oncologists are using one of these regimens in combination with radiotherapy. As can be seen in Figure 7a, two centres use predominantly vinblastine-cisplatin (CISPVINB), two use predominantly etoposide-cisplatin or etoposide-carboplatin (CISPETOP/CISPET-RT/ETOPCARBO), and two use predominantly vinorelbine-cisplatin (VINOCISP). Figure 7b shows that 83% of the chemotherapy usage for Stage III disease is consistent with one of these approaches and this is consistent with the practice guideline recommendations.

Figure 7a Percentage of Stage IIIB NSCLC Patients Treated by Specific Chemotherapy Regimen, Jan - Dec 2002



Source: Cancer Care Ontario (Oncology Patient Information System, 2003)

Figure 7b Percentage of Stage IIIb NSCLC Patients Treated by Specific Chemotherapy Regimen Consistent with Provincial Guidelines, Jan - Dec 2002



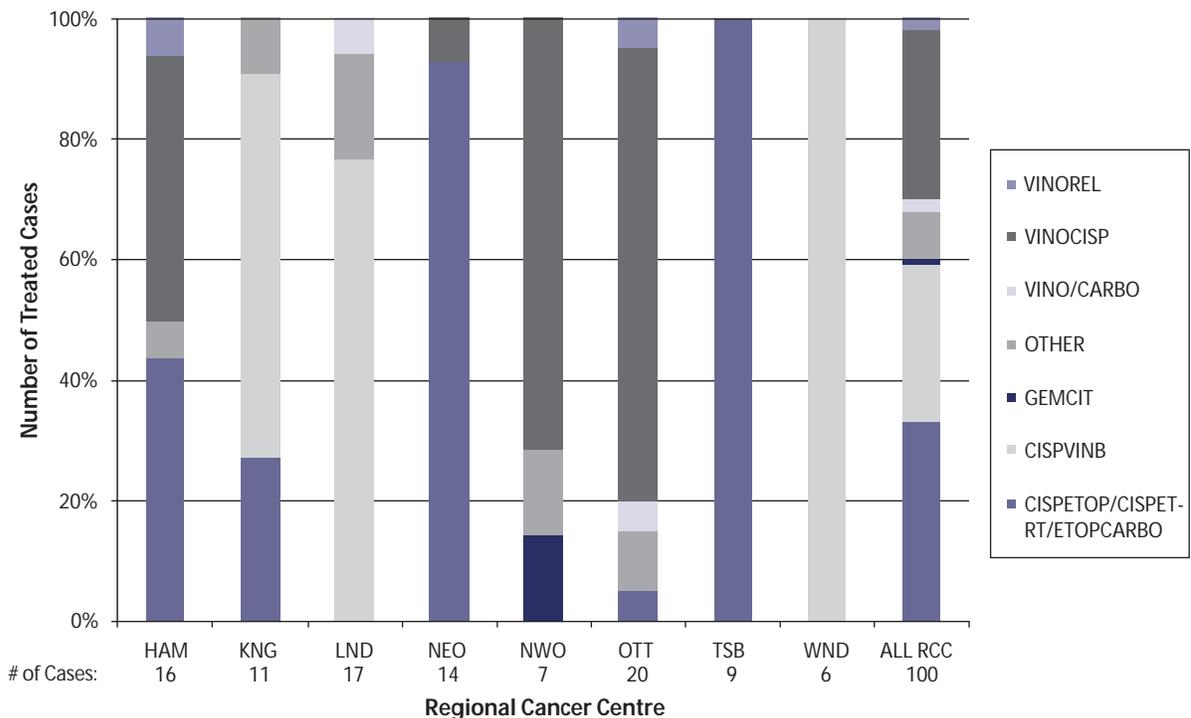
Source: Cancer Care Ontario (Oncology Patient Information System, 2003)

Stage III can be divided into IIIa and IIIb disease. One group of Stage IIIa patients (those with a relatively low volume of lymph node disease in the mediastinum on the same side as the tumour) can be candidates for chemotherapy before surgery

(neoadjuvant chemotherapy). The most commonly used regimens for neoadjuvant chemotherapy include etoposide-cisplatin, vinorelbine-cisplatin, and vinblastine-cisplatin, which are all acceptable approaches. Vinorelbine-

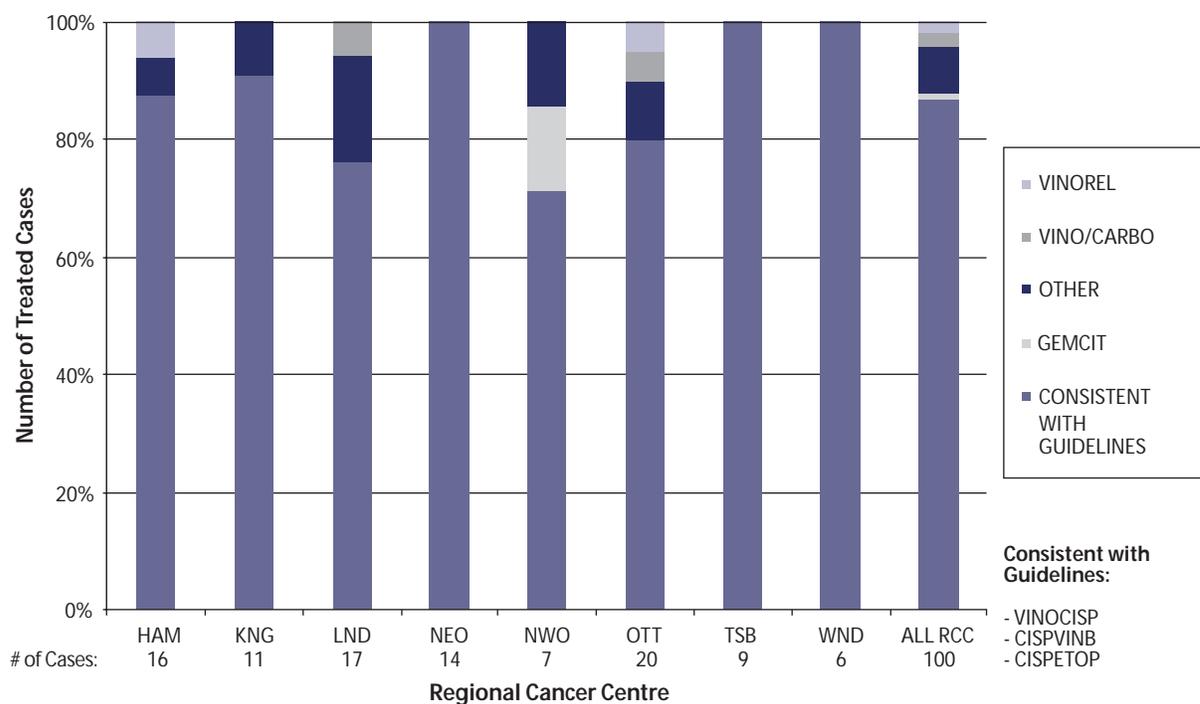
carboplatin is being used in a small percentage of these cases. Although it is well tolerated, it is a more expensive regimen and has not been well studied in Stage III disease.

Figure 8a Percentage of First-Line Systemic Treated Cases by Specific Chemotherapy Regimen for Non-Small Cell Lung Cancer — Stage IIIa, Jan - Dec 2002



Source: Cancer Care Ontario (Oncology Patient Information System, 2003)

Figure 8b Percentage of Stage IIIa NSCLC Patients Treated with Chemotherapy Consistent with Provincial Guidelines, Jan - Dec 2002



Source: Cancer Care Ontario (Oncology Patient Information System, 2003)

Management of Metastatic Non-Small Cell Lung Cancer

The management of Stage IV NSCLC is dependent on the performance status of the patient, as well as the willingness of the patient to accept treatment with its trade-offs of drug-induced toxicities and modest survival and quality of life gains. Four different combination chemotherapy regimens have been shown to have similar response rates and survival but they differ in their toxicities and convenience of administration. Some require multiple visits to a treatment centre each month, whereas others are administered on a once every three week schedule. Depending on the patient's clinical situation, particularly other medical conditions, one regimen may be

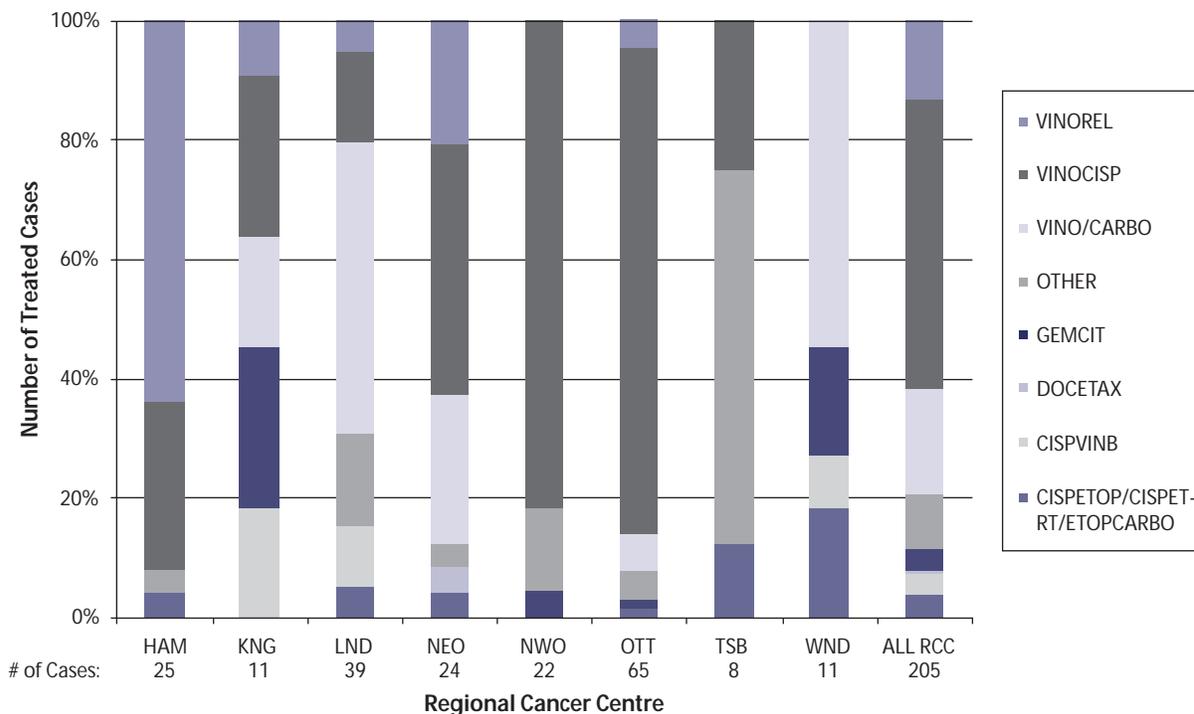
superior to another. For example, taxol-carboplatin and vinorelbine-cisplatin are associated with nerve injury (neuropathy). Neither regimen would be the preferred option in the setting of a pre-existing neuropathy. Unless there are clinical reasons to use a different drug regimen, the Lung DSG recommends vinorelbine-cisplatin as the first line treatment standard, in view of its proven benefit in terms of response rate, survival, and low cost.

For patients who have difficulty with intra-venous access, pre-existing peripheral neuropathy or severe constipation, the gemcitabine-cisplatin regimen is recommended by the Lung DSG as a first-line choice. The Policy Advisory Committee for the New Drug Funding Program has recently approved both

taxotere-cisplatin and taxol-cisplatin/carboplatin as potential first-line options. Previously, taxotere was only available as a second-line therapy after first-line therapy with a regimen such as vinorelbine-cisplatin. Specific clinical circumstances should dictate the choice of regimen where vinorelbine-cisplatin is not possible and a treatment decision algorithm has been developed to guide physician decision-making.

Figure 9a shows the percentage use of different chemotherapy regimens for Stage IV NSCLC patients by treatment centre. It can be seen that vinorelbine-cisplatin, which is the recommended standard, is most commonly used in two centres (Ottawa, Northwestern Ontario), vinorelbine alone is used predominantly in one

Figure 9a Percentage of First-Line Systemic Treated Cases by Specific Chemotherapy Regimen for Non-Small Cell Lung Cancer — Stage 4, Jan - Dec 2002



Source: Cancer Care Ontario (Oncology Patient Information System, 2003)

centre (Hamilton), and several centres use a variety of regimens, perhaps reflective of the case mix seen. Vinorelbine alone is considered appropriate in elderly patients and those who would not tolerate cisplatin-related toxicities. It is not recommended by the Lung DSG as a standard therapy in those who can tolerate cisplatin. Even though vinorelbine-carboplatin may have less side effects than the standard vinorelbine-cisplatin, it is not considered an acceptable regimen because of the lack of data on its efficacy relative to other regimens that have been carefully tested in clinical trials. Figure 9b shows that 72% of the regimens being administered are acceptable according to provincial guidelines. Vinorelbine (VINOREL) alone is included as

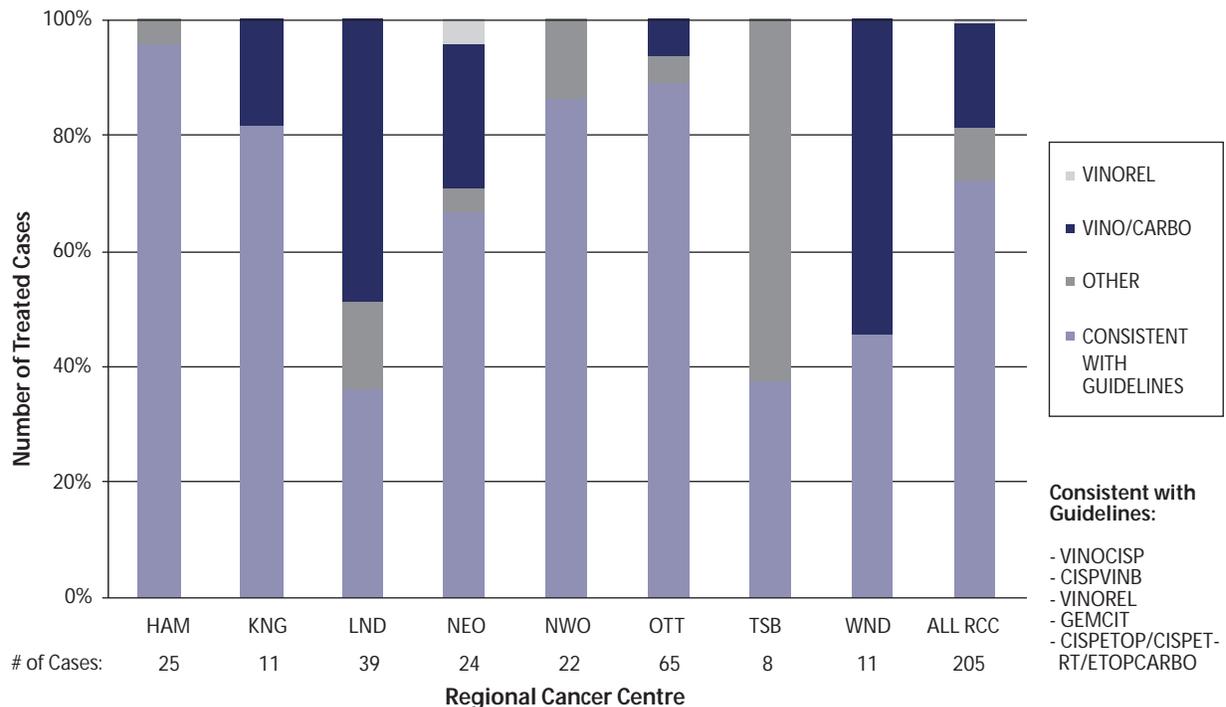
acceptable in this analysis, but not vinorelbine-carboplatin (VINO/CARBO).

Management of Small Cell Lung Cancer

Small cell lung cancer makes up about 15% of all lung cancer cases. At least two-thirds of patients present with widespread disease with metastases to organs outside of the chest. This is referred to as extensive disease. Limited disease refers to disease confined to the thorax. In the latter situation, patients are treated with a combination of chemotherapy and radiotherapy. The Lung DSG's practice guideline for limited stage small cell lung cancer recommends etoposide-cisplatin (CISPETOP/CISPET-RT) as the standard chemotherapy

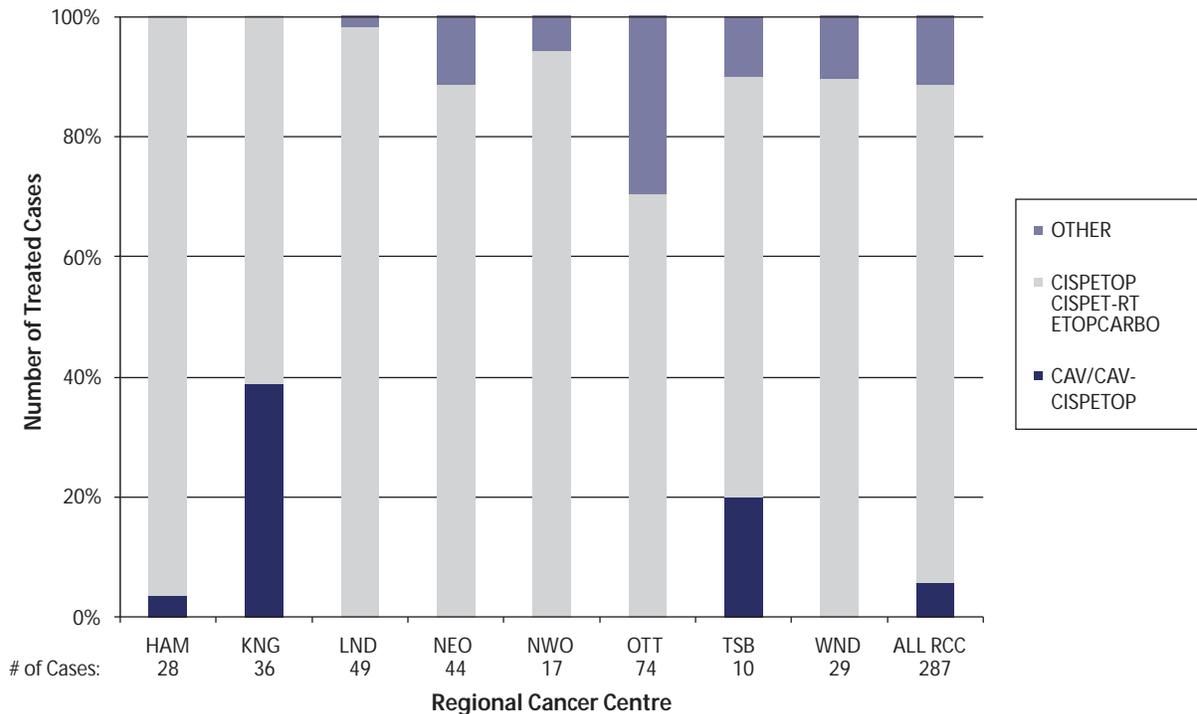
regimen. Etoposide-carboplatin (ETOPCARBO) is also considered acceptable. Figure 10 shows that for patients with both limited and extensive lung cancer, these are the dominant regimens used. An NCIC clinical trial has shown that the use of CAV (a combination of three drugs — cyclophosphamide, Adriamycin and vincristine) alternating with etoposide-cisplatin is superior to using CAV alone. Some clinicians still use this alternating regimen, which yields similar results to etoposide-cisplatin alone and is consistent with provincial practice guidelines. The data from the regional cancer centres indicate that virtually all cases are treated with regimens that are consistent with the practice guideline recommendations made by the Lung DSG.

Figure 9b Percentage of Stage IV NSCLC Patients Treated with Chemotherapy Consistent with Provincial Guidelines, Jan - Dec 2002



Source: Cancer Care Ontario (Oncology Patient Information System, 2003)

Figure 10 Percentage of Small Cell Lung Cancer Cases Treated with Chemotherapy Regimen — Not TMN Staged, Jan - Dec 2002



Source: Cancer Care Ontario (Oncology Patient Information System, 2003)

Role of Palliative Care

Palliative care plays a very important role in the management of lung cancer patients because, as noted in the section on lung cancer mortality, the five-year survival of lung cancer patients is less than 15%. Most patients would benefit from a palliative care team to assist in symptom management, psychosocial support, and attention to spiritual needs. Unfortunately, there is little information about the proportion of patients who actually have access to such important supportive care and palliative care assistance. In some cancer treatment facilities, palliative

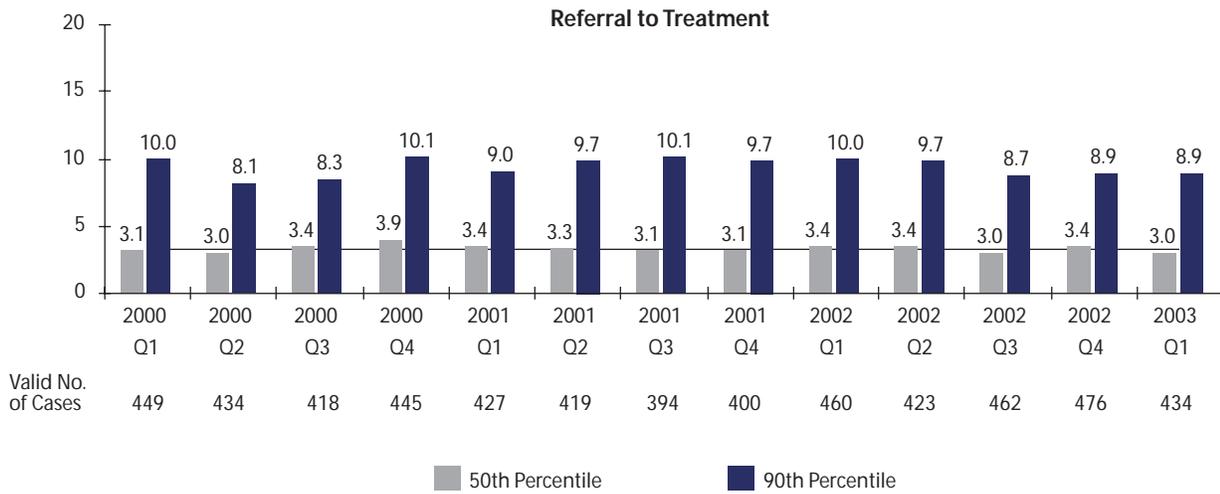
care clinics have been established to support the needs of cancer patients generally, and particularly those with symptoms that are proving difficult to manage with conventional medical interventions.

Future initiatives should optimize the integration of supportive care and palliative care services into the management of the lung cancer patient. And there is a need for more data on the proportion of patients who are provided such care and the degree to which their symptoms are palliated.

Access to Cancer Treatment — Wait Times

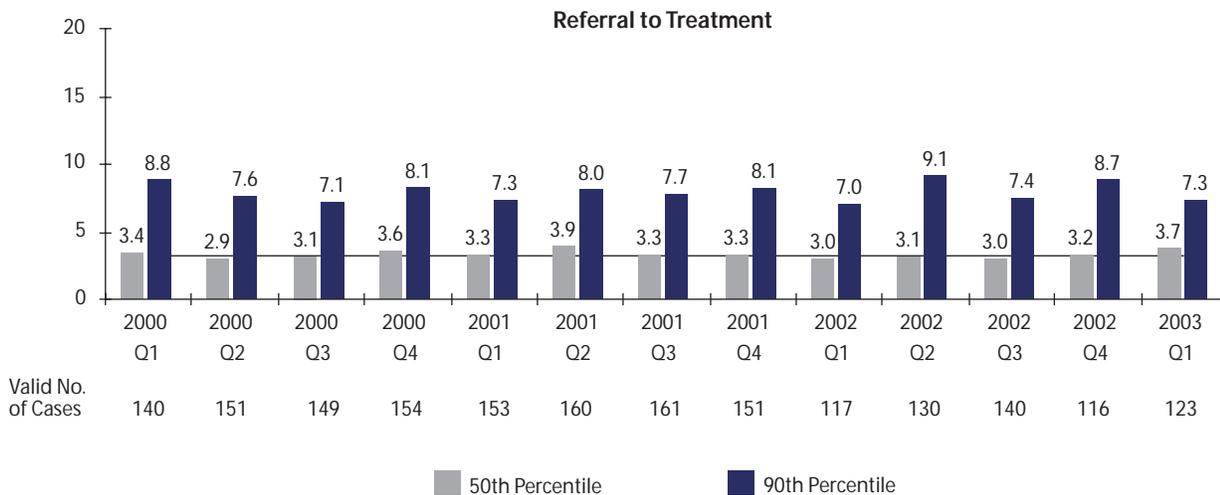
It is not known at what point waiting for cancer treatment can lead to physical harm. Intuitively, it makes sense to begin treatment as promptly as possible after the diagnosis of cancer. On the other hand, cancer takes many years to reach a size that is clinically detectable, so several weeks or months of waiting, depending on the tumour site may actually have little or no impact on the ultimate disease outcome, although waiting does affect the patient's quality of life. There are data to show that anxiety

Figure 11 Lung Cancer Radiation Therapy Wait Times, 2000 Q1 to 2003 Q1



Note: Excludes all time intervals greater than 20 weeks per period.
 Source: Cancer Care Ontario (Oncology Patient Information System, 2003)

Figure 12 Lung Cancer Systemic Therapy Wait Times, 2000 Q1 to 2003 Q1



Note: Excludes all time intervals greater than 20 weeks per period.
 Source: Cancer Care Ontario (Oncology Patient Information System, 2003)

levels are high for people awaiting a diagnosis, and again from diagnosis to the actual start of treatment. In this context, the Canadian Association of Radiation Oncologists recommends that the time interval from referral to the start of treatment should be no longer than four weeks. There are, however, no standards for wait times for surgery or the administration of chemotherapy. There is not much data available concerning wait times for lung cancer surgery. From a study of surgical wait times at hospitals associated with cancer centres in Ontario and published in the *Canadian Medical Association Journal* in August of 2001, the average wait time from referral to surgery was 36 days. Recent wait time data from the Princess Margaret Hospital, University Health Network, suggests an even more serious waiting time problem. Time from referral to operation had grown from 36 days for lung cancer patients in January of 2001 to 70 days in March of 2003. The rate limiting steps appear to be access to operating rooms and the availability of specialized personnel, including anaesthetists. Chemotherapy treatment does not have the same resource constraints as radiation therapy or surgery. Therefore, waiting times for chemotherapy are generally shorter. Where wait times exceed four weeks from referral to treatment, the underlying cause is usually either a shortage of medical oncology consultants or poor access to imaging studies (CT or MRI scan), which are necessary to assess the disease extent prior to the start of treatment. Figures 11 and 12 show

the average wait times (50th percentile and 90th percentile) for radiation and systemic therapy from referral to treatment.

Cancer Care Ontario now posts wait time information on its Web site, which displays the median (average) wait times from referral to treatment for the preceding three months www.cancercare.on.ca/access_waitTimes.htm. These wait times are updated monthly based on data from the regional cancer centres and Princess Margaret Hospital. The table below shows the median wait time from referral to start of treatment for lung cancer, by centre, for the three-month period of May to July 2003.

The benchmark time interval from referral to treatment for lung cancer is four weeks and, as can be seen, almost all radiotherapy treatment centres achieve this standard. However, it should be noted that the wait times apply to both radical and palliative cases. Palliative cases may be seen in rapid access palliative clinics where the consultation, planning and treatment are all given on the same day. This practice will tend to average down the wait times and patients requiring radical therapy may be expected to have wait times that are longer than those posted.

Centre	Weeks
Hamilton Regional Cancer Centre	3.9
Kingston Regional Cancer Centre	2.7
London Regional Cancer Centre	1.9
Northeastern Ontario Regional Cancer Centre	3.9
Northwestern Ontario Regional Cancer Centre	2.9
Ottawa Regional Cancer Centre	3.0
Princess Margaret Hospital	1.0
Toronto Sunnybrook Regional Cancer Centre	2.0
Windsor Regional Cancer Centre	4.7

Conclusions

Lung cancer is one of the most common malignancies in Ontario and the leading cause of cancer deaths.

Waiting times to access a consultation with a medical or radiation oncologist for lung cancer are not excessive and times from consult to treatment are generally modest. The average (median) wait time from referral to treatment in most regional cancer centres and the Princess Margaret Hospital is less than the four week target set by Cancer Care Ontario.

Unfortunately, there is less data available on waiting times for surgery or on other important quality issues such as surgical resection rates and peri-operative mortality. The Surgical Oncology Program is currently addressing these data deficiencies and developing quality indicators. However, Ontario has a long history of excellence in thoracic surgery and it is highly probable that measures of quality will rate highly in thoracic surgical oncology, with the exception of timeliness of access.

Lung cancer commonly presents in an advanced stage of disease, which precludes surgical resection for cure. For locally advanced disease, a combination of chemotherapy and radiotherapy is recommended for patients who are well enough to receive this combination of therapies and Cancer Care Ontario's guideline recommendation appears to have been adopted in regional cancer centres. The available data does not allow us to determine if all patients who could potentially benefit from this therapy actually receive it.

For metastatic non-small cell lung cancer, a variety of cisplatin-based chemotherapy regimens can be used to palliate symptoms and prolong survival for those patients who are of good performance status and who have not lost significant amounts of weight. Practices in regional cancer centres appear to be consistent with evidence-based practice guidelines. However, there is no data to inform us as to whether all candidates who could benefit from this therapy receive it.

For small-cell lung cancer, chemotherapy is the backbone of treatment, and most patients receive the two-drug chemotherapy regimen etoposide-cisplatin. Practice within regional cancer centres is uniformly consistent with evidence-based recommendations.

Overall, the data from the Decision Support Unit using DS-Web show a high degree of consistency of practice with guideline recommendations generated by the Lung DSG of Cancer Care Ontario's Practice Guidelines Initiative.

Glossary of Terms

Adjuvant chemotherapy

The use of anti-cancer drugs after surgery to decrease the chance of the cancer coming back.

Adjuvant therapy

A treatment method used in addition to the primary therapy; used to increase the effectiveness of treatment.

Age-standardized rate

The number of new cases of cancer or cancer deaths per 100,000 that a population would have if it had a standard age structure. Standardization is necessary when comparing several populations that differ with respect to age because age has such a powerful influence on mortality and morbidity indicators.

Age-specific rate

The number of new cases of cancer or cancer deaths during the year, expressed as a rate per 100,000 persons in a given age group.

Chemotherapy

A drug or combination of drugs used to kill cancer cells and fight cancer.

Combination chemotherapy

Treatment using two or more anti-cancer medications.

Combined modality therapy

Two or more types of treatment are given either at the same time or in sequence; may include combinations of radiation, chemotherapy, surgery, or others.

Five-year relative survival

A measure of the reduction in life expectancy due to a diagnosis of cancer. Relative survival is estimated from life tables as the ratio of the observed survival of cancer cases five years after diagnosis to the expected survival of individuals of the same age in the general population.

Fraction

Dose of radiation for a single treatment.

Incidence

A rate showing how many new cases of a disease occurred in a population during a specified interval of time (usually expressed

as number of new cases per unit time per fixed number of people; e.g., number of new cases of cancer per 100,000 persons in one year).

Locally advanced cancer

Cancer that has spread only to nearby tissues or lymph nodes.

Lymph nodes

Small bean-shaped organ that acts as a filter to collect bacteria and other foreign substances from the lymphatic system to be processed by the immune system.

Metastasis

The spread of cancer cells from the original site to other parts of the body.

Modality

A type or kind of treatment (surgery, chemotherapy, radiotherapy).

Multimodality therapy

Therapy that combines more than one method of treatment such as chemotherapy and radiation.

Neoadjuvant therapy

Therapy given before the primary treatment to treat a cancer to improve the effectiveness of the primary treatment; neoadjuvant therapy can be chemotherapy or radiation therapy.

Non-small cell lung cancer

The most common histological type of lung cancer; includes adenocarcinoma, squamous cell carcinomas, large cell anaplastic and bronchial alveolar carcinomas.

Ontario Cancer Registry

The population-based database that includes information on all diagnoses of cancer reported in Ontario since 1964. It includes limited data about diagnosis (date, type of cancer), death (date, cause), treatment, and the individual (date of birth, sex, census division of residence at diagnosis/death) for all cancer patients. It does not include data on risk factors, stage, grade, or non-melanoma skin cancers.

Prevalence

The total number of active cancer cases in the population at the current moment in time.

Radiation treatment

X-ray treatment that damages or kills cancer cells.

Regimen

The plan that outlines the dosage, schedule and duration of treatment.

Regional involvement

The spread of cancer from its original site to nearby surrounding areas.

Risk factors

Anything that may increase a person's chance of developing cancer. It may be an activity, such as smoking, diet, family history, environmental agents or many other things.

Side effect

An effect on the body caused by cancer treatment other than the effect on the cancer; also called adverse reaction.

Small cell lung cancer

A histological type of lung cancer characterized by rapid growth clinically and characteristic small cells as seen under the microscope.

Staging

A method to describe the size of a tumour and the extent of its spread.

Standard treatment

Treatment that has been proven effective and is commonly used.

Surgical resection

Removing tissue from the body through a surgical procedure.

Systemic disease

Disease that affects the whole body rather than only an organ.

Systemic treatment

Treatment that reaches cells all over the body by travelling through the bloodstream.

Three-year moving average

Rate calculated using the sum of the new cases of cancer or cancer deaths for a three-year period and the population estimates for those same years. Three-year moving average rates are shown on all graphs describing trends in order to smooth out annual fluctuation.

Tumour histology

The type of cancer as classified by its appearance under the microscope.

Unresectable

Cannot be surgically removed.

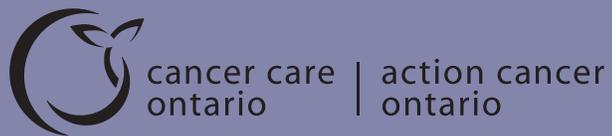
Practice Guideline Publications of the Lung Disease Site Group

1. Logan DM, Lochrin CA, Darling G, Eady A, Newman TE, Evans WK and the Lung Cancer Disease Site Group. Adjuvant radiotherapy and chemotherapy for stage II or IIIA non-small cell lung cancer after complete resection. *Cancer Prevention & Control* 1997;1(5):366-78.
2. Okawara G, Rusthoven J, Newman T, Findlay B, Evans WK and the Lung Cancer Disease Site Group. Unresected stage III non-small cell lung cancer. *Cancer Prevention & Control* 1997;1(3):249-59.
3. Lopez PG, Stewart DJ, Newman TE, Evans WK and the Lung Cancer Disease Site Group. Chemotherapy in stage IV (metastatic) non-small cell lung cancer. *Cancer Prevention & Control* 1997;1(1):18-27.
4. Goss GD, Logan DM, Newman TE, Evans WK and the Lung Cancer Disease Site Group. Use of vinorelbine in non-small cell lung cancer. *Cancer Prevention & Control* 1997;1(1):28-38.
5. Goss G, Paszat L, Newman T, Evans WK and the Lung Cancer Disease Site Group. Use of preoperative chemotherapy with or without postoperative radiotherapy in technically resectable stage IIIA non-small cell lung cancer. *Cancer Prevention & Control* 1998; (1):32-9.
6. Okawara G, Gagliardi A, Evans WK, and the Cancer Care Ontario Practice Guidelines Initiative Lung Cancer Disease Site Group. The role of thoracic radiotherapy as an adjunct to standard chemotherapy in limited-stage small-cell lung cancer. *Current Oncology* 2000;7(3):162-72.
7. Kotalik J, Yu E, Markman BR, Evans WK, and the Cancer Care Ontario Practice Guidelines Initiative Lung Cancer Disease Site Group. Practice guideline on prophylactic cranial irradiation in small-cell lung cancer. *International Journal of Radiation Oncology • Biology • Physics* 2001;50(2):309-316.
8. Ellis P, Mackay JA, Evans WK, and the Lung Cancer Disease Site Group. Use of gemcitabine in non-small-cell lung cancer. *Current Oncology* 2003;10(1):3-26.

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