Better Outcomes for Lung Cancer in Family Practice

AProf Jeff Garrett
Respiratory Physician
Lung Cancer

- Leading cause of cancer death in NZ overall

  *Maori have especially poor lung cancer outcomes*

- 19% cancer deaths in NZ
  ~1500 deaths annually
5yr Relative Survival (NZ)
Figure LSU1: 5-year relative survival rates by site: 1975-2002

Source: SEER Program, National Cancer Institute. Incidence data are from the SEER 9 areas (http://seer.cancer.gov/registries/terms.html). Data are not age-adjusted.
Lung cancer 5 year Survival NZ

FIVE YEAR CUMULATIVE RELATIVE SURVIVAL - 1998-2009

- New Zealand %
- Auckland Region
- CMDHB
Identification of Barriers to the Early Diagnosis of Lung Cancer and Description of Best Practice Solutions

Wendy Stevens, Jeff Garrett, Chris Lewis, Denise Aitken et al

Cancer Trials New Zealand, the University of Auckland

Funded by a Health Research Council of New Zealand & District Health Boards New Zealand Grant
Our Barriers to Early Diagnosis

1. Presentation/Attendance Barriers
2. Identification Barriers
3. Waiting Time Barriers
4. Information Barriers
Survival & Stage

- 5 year survival strongly related to stage at diagnosis
  NSCLC  Stage I/II  >50%  (73% with surgery)
    III  15%
    IV  3%

- Worldwide, poor survival outcomes from lung cancer are largely attributed to late presentation

- Currently majority present with advanced disease
  Audits (2004 & 2008) in the Northern Region NZ
    >70% have incurable disease at diagnosis (IIIIB/IV NSCLC; extensive SCLC)
  Unaware symptoms serious
  Nihilistic attitudes – death sentence – nothing can be done
Clinical Management

Findings from Audits (2004 & 2008) in Northern Region

- Low investigation rates in 1\textsuperscript{st} care
  65% CXR prior to 2\textsuperscript{nd} care (98% Canada)
  11% chest CT prior to 2\textsuperscript{nd} care (56% Canada)
  - poor GP access to CTs

- High proportion (44%) present acutely to 2\textsuperscript{nd} care (UK 21%);
- Only 26% GP referred to Respiratory Specialist!!! (UK 45%)
Lower treatment rates (curative & palliative intent) in NZ

**Surgical resection rate (2004 audit):**

- Overall: NZ 14% vs. 20-24% (USA, Europe)
- I/II NSCLC: NZ 49% vs. 65-84% (72% Australia)

**Any anticancer treatment**
- NZ 50% vs. 68-75% OS

**Palliative Radiation Rx**
- NZ 40% vs. 72% OS
Summary of the clinical standards for the management of lung cancer services

1. Timely access to services
   - **Standard 1**: Patients requiring active treatment shall start treatment within 62 calendar days of receipt of referral by secondary care.
   - **Standard 2**: Patients with clinical and/or radiological signs and symptoms suggestive of lung cancer should be seen by a specialist with an interest in respiratory medicine within 14 calendar days of receipt of referral by secondary care.
   - **Standard 3**: Chest x-ray should be performed for all patients with symptoms suggestive of lung cancer and should be reported back to the referrer within 7 calendar days (immediately) of receipt of referral by the radiology service provider.

2. Communication and referral
   - **Standard 4**: Formal referral pathway and required information should be agreed between primary, secondary and tertiary care. Communications between health care providers should include patient’s name, date of birth, National Health Index (NHI) and should ideally be electronic.

3. Data collection
   - **Standard 5**: All patients with lung cancer should be entered into a lung cancer database.

4. Investigations
   - **Standard 6**: CT should be performed before a bronchoscopy.
   - **Standard 7**: All cancer centres should have timely access to endobronchial ultrasound (EBUS).
   - **Standard 8**: Staging PET-CT should be performed in patients with suspected or confirmed non-small cell lung cancer suitable for potentially radical treatment with the exception of peripheral T1aN0 tumours.
5. Multidisciplinary care
   - **Standard 9**: All patients with lung cancer should be discussed at a multidisciplinary meeting.

6. Smoking cessation
   - **Standard 10**: All current smokers and their family/whānau should be offered smoking cessation advice and support to quit where appropriate.

7. Care coordination
   - **Standard 11**: All patients with suspected lung cancer should have a nominated single point of contact, ideally a cancer nurse, to provide psychosocial support, information and coordination of a patient’s journey. Contact will be made with the patient within 7 calendar days of the initial assessment with a specialist.

8. Palliative care
   - **Standard 12**: Patients, who cannot be offered curative treatment, as well as those with significant symptom burden, should be offered early access to palliative care services.

9. Active anticancer treatment
   - There is no specific standard for active anticancer treatment. However timely active anticancer treatment is important and is incorporated in the 62 calendar day wait time target between receipt of referral and start of treatment (see Standard 1).

10. Follow-up
    - **Standard 13**: All patients and their general practitioners should be given written information regarding a follow-up plan (including frequency of visits, required tests if needed and with which designated service) together with a nominated point of contact if there is a clinical concern.
## Respiratory Referral for Outpatient Appointment

### Clinical Information
- **Suspected Lung Cancer**

### Attachments/Reports
- No reports selected
- No files attached

### Medications/Warnings
- 5 current medications specified, 1 medical warning specified

### Medical History
- Medical history specified

### Patient Disabilities
- No disabilities specified
- No mobility issues specified

### Patient Information
- ROBERT KIM BANISTER, 59yrs
- CNV5445

### Administration Details
- Auckland CHB

### Measurement Details
<table>
<thead>
<tr>
<th>Date</th>
<th>Code</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Code</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/07/2009</td>
<td>BMI</td>
<td>142/90</td>
</tr>
</tbody>
</table>

### ACC
- ACC claim
- Not Specified

### Previously Referred
- Has patient been previously referred for this condition?
- Check box

### Reason for Referral
- **Suspected Lung Cancer**

### Form is auto-saved.
When you click on Help → Referral Guidelines
Urgent referral with high-suspicion of cancer

First cancer treatment
First specialist assessment
Decision-to-treat

Indicator one (best practise – 62 days)
Indicator two (best practise – 14 days)
Indicator three (best practise – 31 days)

Includes diagnostics, surgical & non-surgical treatments

All cancers by tumour stream
When there is a high suspicion of cancer – ensure that you complete
• Referral to Respiratory
• Referral to CT
Fig 10. Pancost’s tumour. There is a mass at the left apex on the frontal view. Close inspection shows destruction of the posterior half of the second rib and part of the third rib. CT section through the tumour shows its proximity to the posterior ends of the ribs and partial destruction of the ribs and adjacent vertebral body.
Profile of a Patient that should be referred urgently for a chest x-ray

- Unexplained haemoptysis OR
- Any of the following unexplained, persistent (lasting more than 3 weeks or less than 3 weeks in people with known risk factors) symptoms and signs:
  - Chest and/or shoulder pain
  - Shortness of breath /cough
  - Weight loss/loss of appetite
  - Abnormal chest signs (eg fixed wheeze, focal signs)
  - Hoarseness
  - Finger clubbing
  - Cervical and/or supraclavicular lymphadenopathy
  - Features suggestive of metastasis from a lung cancer (e.g., in brain, bone, liver or skin)
Background

Why don’t we screen for lung cancer?

- If you screen 1000 patients for lung cancer, you
  - Find 9 stage 1 lung cancers
  - Find 235 “false positive” lung nodules, (determined by further tests or follow up)
  - Perform 4 thoracotomies for benign disease
- Risk of “over-diagnosis” of cancers that would never have become clinically apparent
- We need to be smarter at selecting patients with the highest risk of lung cancer, to reduce false positives

NLST: Screening with CT vs CXR improves survival, but cost effectiveness data is awaited

Figure 1. Cumulative Numbers of Lung Cancers and of Deaths from Lung Cancer.
Hypothesis: COPD and lung cancer genetic overlap?

Figure: Overlap of chronic obstructive pulmonary disease and lung cancer in smokers. In epidemiology studies of chronic smokers, spirometric testing shows that about 20% have chronic obstructive pulmonary disease (COPD). This approach gives three groups of chronic smokers for comparison: those with normal lung function, COPD, and lung cancer. Lung cancer cases are further subdivided according to COPD phenotype.

Lung Cancer (10-15% of smokers)

Emphysema/COPD (20-30% of smokers)

Young & Hopkins
Risk Profile

Cigarettes

Lung Cancer

Emphysema/COPD
Figure 3. Kaplan–Meier Estimates of Survival According to Study Group.
Useful Website Guide

- www.lungfoundation.com.au
- www.macmillan.org
- www.cancersociety.co.nz
- www.lunghealth.org.nz
Key Take Home Messages

- Prevent lung cancer
  - Ask about smoking status; offer support to quit

- Recognition of lung cancer
  - Pts with emphysema at highest risk (+FH/PH cancer)
  - Persistent cough (longer than 3 weeks) not responding to treatment – most common symptom
  - Low threshold for ordering Chest Xray
  - Order CT chest at time of specialist referral (sputums/bloods)
  - DHBs are now required to see and treat your patient quickly; most are already doing so
Lung Cancer Survival Rates
## Faster Cancer Treatment Indicator Report

### INDICATOR RESULTS (All Tumour Streams)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>% FCT Indicator Timeframe Met (62 days)</th>
<th>Rolling 12-month</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mar-2013</td>
<td>Jun-2013</td>
</tr>
<tr>
<td>Auckland</td>
<td>69.1%</td>
<td>70.8%</td>
</tr>
<tr>
<td>Counties Manukau</td>
<td>66.7%</td>
<td>61.5%</td>
</tr>
<tr>
<td>Northland</td>
<td>52.4%</td>
<td>59.6%</td>
</tr>
<tr>
<td>Waitemata</td>
<td>63.7%</td>
<td>67.1%</td>
</tr>
<tr>
<td>Northern Region</td>
<td>64.0%</td>
<td>65.8%</td>
</tr>
</tbody>
</table>

### Indicator 2 (Ref->FSA)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>% FCT Indicator Timeframe Met (14 days)</th>
<th>Rolling 12-month</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mar-2013</td>
<td>Jun-2013</td>
</tr>
<tr>
<td>Auckland</td>
<td>50.6%</td>
<td>40.2%</td>
</tr>
<tr>
<td>Counties Manukau</td>
<td>61.0%</td>
<td>49.1%</td>
</tr>
<tr>
<td>Northland</td>
<td>41.5%</td>
<td>46.8%</td>
</tr>
<tr>
<td>Waitemata</td>
<td>51.8%</td>
<td>46.2%</td>
</tr>
<tr>
<td>Northern Region</td>
<td>53.3%</td>
<td>46.1%</td>
</tr>
</tbody>
</table>

### Indicator 3 (DTT->Trmt)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>% FCT Indicator Timeframe Met (31 days)</th>
<th>Rolling 12-month</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mar-2013</td>
<td>Jun-2013</td>
</tr>
<tr>
<td>Auckland</td>
<td>81.1%</td>
<td>88.5%</td>
</tr>
<tr>
<td>Counties Manukau</td>
<td>77.2%</td>
<td>74.4%</td>
</tr>
<tr>
<td>Northland</td>
<td>71.1%</td>
<td>73.9%</td>
</tr>
<tr>
<td>Waitemata</td>
<td>82.9%</td>
<td>83.3%</td>
</tr>
<tr>
<td>Northern Region</td>
<td>79.2%</td>
<td>80.9%</td>
</tr>
</tbody>
</table>
### 1. Timely access to services

<table>
<thead>
<tr>
<th>Northern Region DHBs</th>
<th>Northland</th>
<th>Waitemata</th>
<th>Auckland</th>
<th>Counties Manukau</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Patients requiring active treatment should start treatment within 62 calendar days of secondary care receiving a referral.</td>
<td>93%</td>
<td>57%</td>
<td>65%</td>
<td>63%</td>
</tr>
<tr>
<td>2) Patients with clinical and/or radiological signs and symptoms suggestive of lung cancer should be seen by a specialist with an interest in respiratory medicine within 14 calendar days of secondary care receiving a referral.</td>
<td>68%</td>
<td>72%</td>
<td>84%</td>
<td>69%</td>
</tr>
<tr>
<td>3) Chest X-rays should be performed for all patients with symptoms suggestive of lung cancer and should be reported back to the referrer within seven calendar days of the radiology service provider receiving a referral.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 2. Communication and referral

<table>
<thead>
<tr>
<th>Northland</th>
<th>Waitemata</th>
<th>Auckland</th>
<th>Counties Manukau</th>
</tr>
</thead>
<tbody>
<tr>
<td>4) The formal referral pathway and required information should be agreed between primary, secondary and tertiary care. Communications between health care providers include the patient’s name, date of birth, NHI number, ethnicity and contact details, and are ideally electronic.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key:**
- **Green**: Meets standard or expected performance level (at least 75%)
- **Orange**: Partially achieved, needs improvement or performance level is between 50% and 74%
- **Red**: Does not meet standard or performance level is below 50%
- **Yellow**: Inadequate information available
### 3. Data Collection

5) All patients with lung cancer should be entered into a lung cancer database.

### 4. Investigations

6) Computed tomography (CT) should be performed before a bronchoscopy.

7) All cancer centres should have timely access to endobronchial ultrasound (EBUS).

8) Staging PET-CT should be performed in patients with suspected or confirmed non-small-cell lung cancer suitable for potentially radical treatment, with the exception of peripheral T1aN0 tumours.

<table>
<thead>
<tr>
<th>Northern Region DHBs</th>
<th>Northland</th>
<th>Waitemata</th>
<th>Auckland</th>
<th>Counties Manukau</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3. Data Collection</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) All patients with lung cancer should be entered into a lung cancer database.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4. Investigations</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) Computed tomography (CT) should be performed before a bronchoscopy.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7) All cancer centres should have timely access to endobronchial ultrasound (EBUS).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8) Staging PET-CT should be performed in patients with suspected or confirmed non-small-cell lung cancer suitable for potentially radical treatment, with the exception of peripheral T1aN0 tumours.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key:**
- **Green**: Meets standard or expected performance level (at least 75%)
- **Yellow**: Partially achieved, needs improvement or performance level is between 50% and 74%
- **Red**: Does not meet standard or performance level is below 50%
- **Inadequate information available**
### 5. Multidisciplinary care

9) All patients with lung cancer should be discussed at a multidisciplinary meeting.

### 6. Smoking cessation

10) All current smokers and their family/whanau should be offered smoking cessation advice and support to quit, where appropriate.

<table>
<thead>
<tr>
<th>Northern Region DHBs</th>
<th>Northland</th>
<th>Waitemata</th>
<th>Auckland</th>
<th>Counties Manukau</th>
</tr>
</thead>
<tbody>
<tr>
<td>98%</td>
<td>96%</td>
<td>95%</td>
<td>95%</td>
<td></td>
</tr>
</tbody>
</table>

### 7. Care co-ordination

11) All patients with suspected lung cancer should have a nominated single point of contact, ideally a nurse who specialises in cancer care, to provide psychosocial support, information and co-ordination of a patient’s cancer journey. Contact will be made with the patient within seven calendar days of the initial assessment with a specialist.

**Key:**

- **Green**: Meets standard or expected performance level (at least 75%)
- **Yellow**: Partially achieved, needs improvement or performance level is between 50% and 74%
- **Red**: Does not meet standard or performance level is below 50%
- **Yellow**: Inadequate information available
8. Palliative care

12) Patients who cannot be offered curative treatment, as well as those with a significant symptom burden, should be offered early access to palliative care services.

9. Active anti-cancer treatment

There is no specific standard for active anti-cancer treatment. However, timely active anti-cancer treatment is important and is incorporated in the 31 day wait time indicator between decision to treatment and start of treatment.

<table>
<thead>
<tr>
<th>Northern Region DHBs</th>
<th>Northland</th>
<th>Waitemata</th>
<th>Auckland</th>
<th>Counties Manukau</th>
</tr>
</thead>
<tbody>
<tr>
<td>13) All patients and their general practitioners should be given written information regarding a follow up plan (including frequency of visits, tests required and with which designated service), together with a nominated point of contact if there is a clinical concern.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

10. Follow-up

<table>
<thead>
<tr>
<th></th>
<th>Northland</th>
<th>Waitemata</th>
<th>Auckland</th>
<th>Counties Manukau</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meets standard or expected performance level (at least 75%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Partially achieved, needs improvement or performance level is between 50% and 74%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does not meet standard or performance level is below 50%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inadequate information available</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>