Lung cancer care in Victoria
Identifying opportunities for improvement

Prof David Ball
In this presentation…

• Incidence and survival

• The lung cancer population at presentation

• Care pattern and variation across Victoria
  - Diagnosis, staging & treatment planning
  - Treatment (surgery, chemotherapy & radiotherapy)
  - Supportive and palliative care
Lung cancer optimal care pathway

Prevention and early detection

Presentation, initial investigations and referrals

Diagnosis, staging and treatment planning

Treatment

Care after initial treatment and recovery

Managing recurrent and residual disease

End-of-life care
Lung cancer optimal care pathway

Prevention and early detection
Presentation, initial investigations and referrals
Diagnosis, staging and treatment planning
Treatment
Care after initial treatment and recovery
Managing recurrent and residual disease
End-of-life care
Sources of data to describe current practice

1. Prevention and early detection
   - Victorian Cancer Registry
   - Victorian Admitted Episode Dataset
   - Victorian Patterns of Care (POC) study 2003

2. Presentation, initial investigations and referrals
   - DH Cancer Performance Indicator Audit
   - Victorian Radiotherapy Minimum Dataset

3. Diagnosis, staging and treatment planning
   - Victorian Admitted Episode Dataset

4. Treatment
   - Linked data set

5. Care after initial treatment and recovery
   - Victorian Patterns of Care (POC) study 2003

6. Managing recurrent and residual disease

7. End-of-life care
   - Victorian Lung Cancer Registry
About linked data

• Links Victorian Cancer Registry with hospital activity data

• Ability to track each patient across Victorian public and private health services

• Allows identification of admitted lung cancer cases confirmed by the VCR

• Allows mapping of the patient’s pathway

• Plan to include radiotherapy data
Data analysis

Limitations of the linked VCR/VAED data set:

• Hume region activity data for patients treated at Albury Wodonga Health – Albury Campus is not reported to the VAED or the VCR, and was not available for analysis.

Staging is not currently available for lung cancer

Observed differences could be due to the lung patient disease characteristics such as staging
Lung cancer incidence and survival in Victoria
Trends in incidence and mortality
Victoria 1982-2012

Source: Victorian Cancer Registry (VCR) Nov 2014
Lung cancer (C33-34) relative 5-year survival over time

For 2008-2012 time period the 5 year survival was at 15%.

Source: VCR 2012 Cancer Survival Victoria
Lung cancer survival, Victoria
survival by age group, 2008-2012

5-year relative survival (%)

Source: Victorian Cancer Registry Nov 2014
Integrated Cancer Services (ICS) & Cancer Centres

- Western MICS
- Central MICS
- North Eastern MICS
- Southern MICS
- Victorian Comprehensive Cancer Centre

- Monash Comprehensive Cancer Consortium
- Olivia Newton John Cancer and Wellness Centre
- Integrated Cancer Services (ICS) & Cancer Centres

- Loddon Mallee ICS
- Grampians ICS
- Barwon South Western ICS
- Hume ICS
- Gippsland ICS

- Bendigo Regional Cancer Centre
- Albury Wodonga Regional Cancer Centre
- Andrew Love Barwon Regional Cancer Centre
- Gippsland Regional Cancer Centre
- Ballarat Regional Cancer Centre

- Western ICS
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- Western Central MICS
- North Eastern MICS
- Southern MICS

- Victorian Comprehensive Cancer Centre
- Monash Comprehensive Cancer Consortium
- Olivia Newton John Cancer and Wellness Centre
Lung cancer 5 year incidence numbers 2008-2012

<table>
<thead>
<tr>
<th>ICS of patient residence</th>
<th>5 year incidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barwon</td>
<td>1,043</td>
</tr>
<tr>
<td>Gippsland</td>
<td>874</td>
</tr>
<tr>
<td>Grampians</td>
<td>602</td>
</tr>
<tr>
<td>Hume</td>
<td>745</td>
</tr>
<tr>
<td>Loddon Mallee</td>
<td>959</td>
</tr>
<tr>
<td>NE Metro</td>
<td>2,697</td>
</tr>
<tr>
<td>S Metro</td>
<td>3,442</td>
</tr>
<tr>
<td>WC Metro</td>
<td>2,413</td>
</tr>
</tbody>
</table>

Lung cancer standardised incidence rate 2008-2012

<table>
<thead>
<tr>
<th>ICS of patient residence</th>
<th>Age standardised incidence rate per 100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barwon</td>
<td>26.5</td>
</tr>
<tr>
<td>Gippsland</td>
<td>28.8</td>
</tr>
<tr>
<td>Grampians</td>
<td>25.7</td>
</tr>
<tr>
<td>Hume</td>
<td>26.0</td>
</tr>
<tr>
<td>Loddon Mallee</td>
<td>28.9</td>
</tr>
<tr>
<td>NE Metro</td>
<td>20.9</td>
</tr>
<tr>
<td>S Metro</td>
<td>24.6</td>
</tr>
<tr>
<td>WC Metro</td>
<td>27.2</td>
</tr>
</tbody>
</table>

Source: VCR 2012
Lung cancer (C33-C34) relative 5-year survival by ICS (2006-2010)

Source: VCR Cancer Survival 2012
Lung cancer (C33-C34) absolute survival time by region of residence

All patients - VCR only dataset
Kaplan-Meier estimates

Region of residence
- Regional
- Metro

Number at risk
- Regional: 3856, 1566, 789, 458, 275, 121
- Metro: 7897, 3429, 1810, 1018, 562, 237

Survival time (months)
0 12 24 36 48 60

Log rank p=0.0002

Source: VCR January 2008 - December 2012
The lung cancer population at presentation
Comparison over time

<table>
<thead>
<tr>
<th></th>
<th>2008-2012 VCR*</th>
<th>2003 POC study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n= 10,234</td>
<td>n= 841</td>
</tr>
<tr>
<td>Gender male</td>
<td>60% (6,097)</td>
<td>63% (531)</td>
</tr>
<tr>
<td>Age median</td>
<td>71 (10-99)</td>
<td>72 (30-94)</td>
</tr>
<tr>
<td>No tissue diagnosis#</td>
<td>13% (1,328)</td>
<td>10% (85)</td>
</tr>
<tr>
<td>With tissue diagnosis:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCLC</td>
<td>11% (1,151)</td>
<td>13% (101)</td>
</tr>
<tr>
<td>NSCLC</td>
<td>76% (7,755)</td>
<td>78% (655)</td>
</tr>
<tr>
<td>Of NSCLC cases:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adenocarcinoma</td>
<td>44% (3,386)</td>
<td>40% (261)</td>
</tr>
<tr>
<td>Squamous cell</td>
<td>24% (1,840)</td>
<td>23% (152)</td>
</tr>
<tr>
<td>Large cell</td>
<td>5% (418)</td>
<td>13% (82)</td>
</tr>
<tr>
<td>Other / unspecified</td>
<td>27% (2,111)</td>
<td>25% (160)</td>
</tr>
</tbody>
</table>

*VCR January 2008 – December 2012
#Death certificate only excluded (4%)
2003 POC study: smoking

- **Smoking** (data available for 95% cases)
  - never 63 (8%)
  - past 458 (57%)
  - current 278 (35%)

- 71% of non-smokers are female
  - Female lung cancer 4.5% non-smokers
  - Male lung cancer 3.3% non-smokers (p<0.001)

- Previous smokers ceased median 12 years earlier

- Tobacco exposure in smokers
  - Median 50 pack years
  - Females 37 PY vs Males 52 PY (p<0.001)
Lung cancer (C33-C34) gender distribution by ICS n=10,234

Source: VAED/VCR January 2008 - December 2012
Pearson's $\chi^2$: $p=0.29$
Lung cancer (C33-C34) place of birth by ICS n=10,234

Percentage born in Australia by region of residence

- Barwon
- Gippsland
- Grampians
- Hume
- Loddon Mallee
- NEMICS
- SMICS
- WCMICS

Source: VAED January 2008 - June 2013

Pearson's χ²: p<0.01
2003 POC study: stage distribution

- For NSCLC (n=602)
  - Stage I  107  (18%)
  - Stage II 30  (5%)
  - Stage III 156  (26%)
    - IIIA  71  (12%)
    - IIIB  85  (14%)
  - Stage IV 311  (52%)
Lung cancer (C33-C34) cases with coded distant metastases n=10,234

**Metastases recoded within four weeks of diagnosis**

*Source: VAED/VCR January 2008 - June 2013*

Pearson's $\chi^2$: p<0.001

*Hume data limitation*
Tissue diagnosis
Lung cancer (C33-C34) with tissue diagnosis by age group

Source: VCR January 2008 - December 2012
Pearson's $\chi^2$: p<0.001
Lung cancer (C33-C34) with tissue diagnosis by year of diagnosis

Percentage with tissue diagnosis

By year of diagnosis

Source: VCR January 2008- December 2012
Test of independence: p<0.001
Test of trend: p=0.23
## Lung cancer (C33-C34) with tissue diagnosis by ICS of residence

### Adjusted odds of having a tissue diagnosis

By region of residence, compared to mean

<table>
<thead>
<tr>
<th>ICS</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEMICS</td>
<td>1.15 (1.01, 1.32)</td>
</tr>
<tr>
<td>SMICS</td>
<td>0.93 (0.82, 1.04)</td>
</tr>
<tr>
<td>WCMICS</td>
<td>1.16 (0.99, 1.36)</td>
</tr>
<tr>
<td>Barwon</td>
<td>1.54 (1.17, 2.03)</td>
</tr>
<tr>
<td>Gippsland</td>
<td>0.67 (0.53, 0.84)</td>
</tr>
<tr>
<td>Grampians</td>
<td>0.87 (0.65, 1.17)</td>
</tr>
<tr>
<td>Hume</td>
<td>0.86 (0.66, 1.12)</td>
</tr>
<tr>
<td>Loddon</td>
<td>0.89 (0.70, 1.14)</td>
</tr>
</tbody>
</table>

Source: VCR Jan 2008 - Dec 2012

Adjusted for age, gender and country of birth
Not adjusted for stage
Timeliness of diagnosis and treatment
Process Results: Timeline - Referral to Diagnosis

QI 1: Number of patients where time from referral date to diagnosis is less than 28 days.

<table>
<thead>
<tr>
<th>No.</th>
<th>Numerator</th>
<th>Denominator</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Number of patients where time from referral date to diagnosis is less than 28 days</td>
<td>Total number of patients in Registry</td>
</tr>
</tbody>
</table>

Source: Victorian Lung Cancer Registry (VLCR) July 2012- June 2013
Process Results: **Timeline – Diagnosis to first treatment**

QI 2: Percentage of patients where time from diagnosis date to first treatment date is less than 14 days

<table>
<thead>
<tr>
<th>No.</th>
<th>Numerator</th>
<th>Denominator</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Number of patients where time from diagnosis date to first treatment date is less than 14 days</td>
<td>Total number of patients in Registry receiving treatment</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numerator</td>
<td>43</td>
<td>49</td>
<td>48</td>
<td>31</td>
<td>39</td>
<td>54</td>
<td>13</td>
<td>9</td>
<td>286</td>
</tr>
<tr>
<td>Denominator</td>
<td>76</td>
<td>101</td>
<td>91</td>
<td>44</td>
<td>57</td>
<td>76</td>
<td>34</td>
<td>29</td>
<td>508</td>
</tr>
<tr>
<td>%</td>
<td>57</td>
<td>49</td>
<td>53</td>
<td>70</td>
<td>68</td>
<td>71</td>
<td>38</td>
<td>31</td>
<td>56</td>
</tr>
</tbody>
</table>

Source: VLCR  July 2012- June 2013
SMICS Referral Interval Target times audit:

- A medical record audit, n = 98
- Results:
  - Diagnosis within 28 days
    71% (53) (no information - 24 cases)
  - Initiated first treatment within 14 days
    48% (39) (no information - 17 cases)
Key challenges to timely care

- No priority triage
- Delay in receiving
- Incorrect location
- EGFR testing
- Bronchoscopy
- VATS
- EBUS
- Inappropriate referral
- Delay EGFR testing
- Preconception re efficacy of treatment
- Preconception re curability
- Limited CDU or RT capacity
- Wait on next MDT
- Palliative delays

Referral to Diagnosis 28D
Referral to First Treatment 42D
Diagnosis to Treatment 14D
Treatment planning: Multidisciplinary team model of care
Integrated Cancer Services (ICS) & Lung MDM Locations

- Western Central MICS
  - The Alfred
  - Royal Melbourne Hospital
  - Western Hospital (Footscray)
- North Eastern MICS
  - The Austin
  - Eastern Health (Box Hill)
  - Monash Medical Centre Clayton Lung MDM
- Southern MICS
  - Cabrini Lung MDM
  - Peter Mac Cancer Centre Lung MDM
  - St Vincent's Health Lung MDM
- Western Hospital Lung MDM
  - Frankston Hospital Lung MDM
  - Goulburn Valley Health Shepparton Lung MDM
- Albury Wodonga Lung MDM
- Gippsland ICS
  - Central Gippsland HS Sale Lung MDM
  - St Vincent's Health Lung MDM
- Hume ICS
  - Monash Medical Centre Clayton Lung MDM
  - Peter Mac Cancer Centre Lung MDM
- Grampians ICS
  - Bendigo Health Thoracic & UGI MDM
- Loddon Mallee ICS
  - Mildura Base Hospital Thoracic & UGI MDM
- Barwon South Western ICS
  - Ballarat Health Thoracic MDMs
  - Ballarat SJOG Thoracic MDMs
- Loddon Mallee ICS
  - Barwon Health Lung MDM
- Goulburn Valley Health Shepparton Lung MDM
- Albury Wodonga Lung MDM
- Gippsland ICS
  - Central Gippsland HS Sale Lung MDM
  - St Vincent’s Health Lung MDM
- Hume ICS
  - Monash Medical Centre Clayton Lung MDM
- Grampians ICS
  - Bendigo Health Thoracic & UGI MDM
- Loddon Mallee ICS
  - Mildura Base Hospital Thoracic & UGI MDM
- Barwon South Western ICS
  - Ballarat Health Thoracic MDMs
  - Ballarat SJOG Thoracic MDMs
- Loddon Mallee ICS
  - Barwon Health Lung MDM
- Grampians ICS
  - Bendigo Health Thoracic & UGI MDM
- Loddon Mallee ICS
  - Mildura Base Hospital Thoracic & UGI MDM
- Barwon South Western ICS
  - Ballarat Health Thoracic MDMs
  - Ballarat SJOG Thoracic MDMs
- Loddon Mallee ICS
  - Barwon Health Lung MDM
- Grampians ICS
  - Bendigo Health Thoracic & UGI MDM
- Loddon Mallee ICS
  - Mildura Base Hospital Thoracic & UGI MDM
- Barwon South Western ICS
  - Ballarat Health Thoracic MDMs
  - Ballarat SJOG Thoracic MDMs
- Loddon Mallee ICS
  - Barwon Health Lung MDM
Multidisciplinary treatment planning for newly diagnosed lung patients 2011-2013

2003 POC study: MDM discussion 29%

Source: DH Audit
2003 POC study:
  case discussion at MDM

- **Cases discussed at MDM were more likely:**
  - Younger:  69yr vs 73yr  (p<0.001)
  - Treated with curative intent:  44% vs 22%  (p<0.001)
  - Better PS 0-1:  69% vs 55%  (p<0.001)
  - Early stage disease:  31% vs 21%  (p=0.004)
  - More likely to receive treatment:  82% vs 71%  (p=0.004)

- **Had improved survival:**  10.8 vs 5.5mths  (p <0.001)
2003 POC study:
MDM discussion and patient outcomes

• As some patients may have died too quickly for a MDM discussion to be held, a landmark analysis was conducted for patients surviving at least 2 mths:
  - Improved survival 13.3mths vs 9.3 mths p<0.001

• On multivariate analysis, including all significant variables, MDM discussion an independent prognostic factor for survival:
  - For all lung cancer p=0.008
  - For NSCLC p=0.005
Staging
Process Results: PET documented prior to resection

QI 9: Number of patients with clearly documented PET at diagnosis undergoing curative resection.

<table>
<thead>
<tr>
<th>No.</th>
<th>Numerator</th>
<th>Denominator</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Number of patients with clearly documented PET at diagnosis undergoing curative resection</td>
<td>Total number of patients undergoing curative resection</td>
</tr>
</tbody>
</table>

2003 POC study

Before curative:
- surgery 78%
- radiotherapy 84%

Source: VLCR  July 2012- June 2013
Process Results: clinical TNM staging

QI 7: Number of patients with clearly documented cTNM at diagnosis.

<table>
<thead>
<tr>
<th>No.</th>
<th>Numerator</th>
<th>Denominator</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Number of patients with clearly documented cTNM at diagnosis</td>
<td>Number of patients with NSCLC</td>
</tr>
</tbody>
</table>

Source: VLCR July 2012- June 2013
Staging in MDM documentation for cases discussed at MDM (2011-2013)

Source: DH audit
Sampling from VCR
Treatment: Surgery in NSCLC
Major lung surgery from VAED

- Pneumonectomy
- Lobectomy of lung
- Partial resection of lung
- Other excision procedures on lung or pleura
Major lung cancer surgery in NSCLC by ICS of residence n= 2,035

Percentage of NSCLC who have had major surgery by region of residence

WCMICS
SMICS
NEMICS
Loddon Mallee
Grampians
Hume
Gippsland
Barwon

Source: VAED January 2008 - June 2013
Pearson's $\chi^2$: p=0.056

*Hume data limitation
Major lung cancer surgery in NSCLC by ICS of residence n= 2,035

Adjusted odds of having major surgery for NSCLC
By region of residence, compared to mean

<table>
<thead>
<tr>
<th>ICS</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEMICS</td>
<td>1.16 (1.04, 1.30)</td>
</tr>
<tr>
<td>SMICS</td>
<td>1.16 (1.05, 1.28)</td>
</tr>
<tr>
<td>WCMICS</td>
<td>1.07 (0.95, 1.21)</td>
</tr>
<tr>
<td>Barwon</td>
<td>0.97 (0.80, 1.19)</td>
</tr>
<tr>
<td>Gippsland</td>
<td>0.92 (0.73, 1.16)</td>
</tr>
<tr>
<td>Grampians</td>
<td>0.80 (0.61, 1.04)</td>
</tr>
<tr>
<td>Hume</td>
<td>0.96 (0.75, 1.23)</td>
</tr>
<tr>
<td>Loddon</td>
<td>0.96 (0.77, 1.19)</td>
</tr>
</tbody>
</table>

Source: VAED January 2008 - June 2013

Adjusted for age, gender and country of birth
Not adjusted for stage
Ratio of NSCLC lobectomy: pneumonectomy by ICS of residence n=1277

By region of residence

Source: VAED January 2008 - June 2013
Pearson's $\chi^2$: p=0.638

*Hume data limitation*
Ratio of NSCLC lobectomy: pneumonectomy by ICS of treatment n=1277

By region of treatment

- Barwon 0.09
- Gippsland 0.00
- Grampians 0.00
- Hume 0.00
- Loddon Mallee 0.04
- NEMICS 0.11
- SMICS 0.11
- WCMICS 0.13

Source: VAED January 2008 - June 2013
Pearson’s $\chi^2$: p=0.31

*Hume data limitation
## Lung cancer major surgery: ICS of treatment by ICS of residence

<table>
<thead>
<tr>
<th>ICS of treatment</th>
<th>NEMICS (n=416)</th>
<th>SMICS (n=484)</th>
<th>WCMICS (n=347)</th>
<th>Barwon (n=131)</th>
<th>Gippsland (n=98)</th>
<th>Grampians (n=69)</th>
<th>Hume (n=92)</th>
<th>Loddon (n=117)</th>
<th>Interstate (n=399)</th>
<th>Total (n=2153)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEMICS</td>
<td>270</td>
<td>17</td>
<td>77</td>
<td>4</td>
<td>11</td>
<td>1</td>
<td>18</td>
<td>13</td>
<td>98</td>
<td>509</td>
</tr>
<tr>
<td>SMICS</td>
<td>47</td>
<td>406</td>
<td>13</td>
<td>2</td>
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<td>WCMICS</td>
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<td>16</td>
<td>70</td>
<td>36</td>
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<td>784</td>
</tr>
<tr>
<td>Barwon</td>
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<td></td>
<td>15</td>
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<td>Grampians</td>
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<td>44</td>
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<td>Hume</td>
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<td>Loddon</td>
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</tr>
</tbody>
</table>
Lung cancer major surgery: annual volume by health service

2012 volume by campus

Number of procedures

Source: VAED 2012

For partial resection, lobectomy & pneumonectomy procedures
Surgical NSCLC patient survival time by regional vs metro

Surgical patients with NSCLC living in regional areas

Kaplan-Meier estimates

Region of surgical treatment
- Regional
- Metro

Log rank p=0.55

Number at risk
- Regional: 220, 193, 129, 78, 44, 13
- Metro: 357, 312, 208, 137, 84, 32

Source: VCR/VAED January 2008 - December 2012
30 day mortality following major lung surgery in NSCLC

<table>
<thead>
<tr>
<th>ICS</th>
<th>By ICS of residence n=1,615, p=0.84</th>
<th>By ICS of treatment n=2,035, p=0.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barwon</td>
<td>4% (5)</td>
<td>5% (6)</td>
</tr>
<tr>
<td>Gippsland</td>
<td>1% (1)</td>
<td>0</td>
</tr>
<tr>
<td>Grampians</td>
<td>3% (3)</td>
<td>5% (3)</td>
</tr>
<tr>
<td>Hume</td>
<td>1% (1)</td>
<td>1% (4)</td>
</tr>
<tr>
<td>Loddon-Malle</td>
<td>2% (2)</td>
<td>0</td>
</tr>
<tr>
<td>NEMICS</td>
<td>2% (9)</td>
<td>2% (10)</td>
</tr>
<tr>
<td>SMICS</td>
<td>2% (9)</td>
<td>3% (16)</td>
</tr>
<tr>
<td>WCMICS</td>
<td>3% (9)</td>
<td>2% (14)</td>
</tr>
</tbody>
</table>

Source: VCR/VAED January 2008-December 2012
Chemotherapy in NSCLC
Chemotherapy within 90 days of major lung surgery n=2035

Percentage with adjuvant chemo in NSCLC by region of residence

Barwon
Gippsland
Grampians
Hume
Loddon Mallee
NEMICS
SMICS
WCMICS

Source: VAED January 2008 - June 2013
Pearson’s χ²: p<0.001

*Hume data limitation
Chemotherapy within 90 days of lobectomy / pneumonectomy n=1277

Percentage of NSCLC with adjuvant chemo
Following lobectomy or pneumonectomy

By region of residence

- Barwon
- Gippsland
- Grampians
- Hume
- Loddon Mallee
- NEMICS
- SMICS
- WCMICS

Source: VAED January 2008 - June 2013
Pearson's $\chi^2$: p=0.001

*Hume data limitation
Chemotherapy within 90 days of surgery

Adjuvant chemo post lobectomy/pneumonectomy
By region of residence, compared to mean

<table>
<thead>
<tr>
<th>Region</th>
<th>OR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEMICS</td>
<td>1.37 (1.07, 1.76)</td>
</tr>
<tr>
<td>SMICS</td>
<td>0.98 (0.78, 1.24)</td>
</tr>
<tr>
<td>WCMICS</td>
<td>0.48 (0.33, 0.69)</td>
</tr>
<tr>
<td>Barwon</td>
<td>0.87 (0.54, 1.39)</td>
</tr>
<tr>
<td>Gippsland</td>
<td>1.53 (0.87, 2.66)</td>
</tr>
<tr>
<td>Grampians</td>
<td>0.42 (0.16, 1.09)</td>
</tr>
<tr>
<td>Hume</td>
<td>0.94 (0.52, 1.71)</td>
</tr>
<tr>
<td>Loddon</td>
<td>1.41 (0.82, 2.43)</td>
</tr>
</tbody>
</table>

Source: VAED January 2008 - June 2013

Adjusted for age, gender and country of birth
Not adjusted for stage
Radiotherapy utilisation for lung cancer
## Utilisation rates by ICS of residence for lung cancer in 2012

<table>
<thead>
<tr>
<th>2012</th>
<th>Percentage of incidence</th>
<th>Number of cases receiving RT</th>
</tr>
</thead>
<tbody>
<tr>
<td>S Metro</td>
<td>50%</td>
<td>718</td>
</tr>
<tr>
<td>NE Metro</td>
<td>48%</td>
<td>581</td>
</tr>
<tr>
<td>WC Metro</td>
<td>51%</td>
<td>499</td>
</tr>
<tr>
<td>Metro total</td>
<td>49%</td>
<td>1798</td>
</tr>
<tr>
<td>Barwon</td>
<td>45%</td>
<td>226</td>
</tr>
<tr>
<td>Gippsland</td>
<td>55%</td>
<td>174</td>
</tr>
<tr>
<td>Grampians</td>
<td>34%</td>
<td>131</td>
</tr>
<tr>
<td>Hume</td>
<td>40%</td>
<td>141</td>
</tr>
<tr>
<td>Loddon Mallee</td>
<td>50%</td>
<td>213</td>
</tr>
<tr>
<td>Regional total</td>
<td>46%</td>
<td>885</td>
</tr>
<tr>
<td>Victorian total</td>
<td>48%</td>
<td>2683</td>
</tr>
</tbody>
</table>

Source: Victorian Radiotherapy Minimum Dataset (VRMDS)  
CCORE estimate for lung cancer – 77%
Curative versus palliative intent RT

Source: Victorian Radiotherapy Minimum Data Set (VRMDS)
Supportive Care and Palliative Care
Process Results: Distress screening

QI 4: Number of patients with documented screening for supporting care.

<table>
<thead>
<tr>
<th>No.</th>
<th>Numerator</th>
<th>Denominator</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Number of patients with documented screening for supporting care</td>
<td>Total number of patients in Registry</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Numerator</td>
<td>20</td>
<td>61</td>
<td>1</td>
<td>1</td>
<td>22</td>
<td>44</td>
<td>16</td>
<td>24</td>
<td>189</td>
</tr>
<tr>
<td>Denominator</td>
<td>99</td>
<td>143</td>
<td>119</td>
<td>52</td>
<td>97</td>
<td>93</td>
<td>45</td>
<td>41</td>
<td>689</td>
</tr>
<tr>
<td>%</td>
<td>20</td>
<td>43</td>
<td>1</td>
<td>2</td>
<td>23</td>
<td>47</td>
<td>36</td>
<td>59</td>
<td>27</td>
</tr>
</tbody>
</table>

Source: VLCR July 2012- June 2013
Supportive care needs screening

Source: DH audit
Sampling from VCR
QI 22: Percentage of patients with stage IV NSCLC referred to palliative care, where time between date of diagnosis and date of referral is less than or equal to 56 days.

<table>
<thead>
<tr>
<th>No.</th>
<th>Numerator</th>
<th>Denominator</th>
</tr>
</thead>
<tbody>
<tr>
<td>22</td>
<td>Number of patients with stage IV NSCLC referred to palliative care, where time between date of diagnosis and date of referral is less than or equal to 56 days</td>
<td>Number of patients with stage IV NSCLC</td>
</tr>
</tbody>
</table>

Source: VLCR July 2012- June 2013
Conclusions

• Lung cancer survival trending upwards

• Significant variation in 5 year survival regional vs metro

• Some difference in the likelihood of receiving a tissue diagnosis across ICS

• Some data suggests timeliness of diagnosis and treatment is an issue

• Low volumes of major lung surgery in a number of health services
Conclusions cont.

- Lung MDM case discussions could improve – 63% for the state
- There is variation in rates of adjuvant chemo across ICS
- Overall under-utilisation of radiation therapy
- Low and variable uptake of formalised supportive care screening
Acknowledgments

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