NATIONAL CANCER CONTROL PROGRAMME

NATIONAL STRATEGY FOR THE SAFE ADMINISTRATION OF CANCER DRUGS

Dr Susan O’Reilly MB, FRCPC, FRCPI
National Director
National Cancer Control Programme

• IMSN “Networking for Safety in Cancer Care Conference
• Oct 7th 2011
The Challenges in Ireland in 2006

Cancer Surgery delivered everywhere

- 32+ hospitals: low volumes; poor outcomes; breast and colon cancer scandals; delayed diagnostics and treatment.
- Lack of national policies, treatment guidelines, Quality Assurance.
- No co-ordinated national plan for screening, surgery, radiation or medical oncology.
Number of new invasive cases (1995 to 2008) [solid line] with projected numbers to 2035
<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>2005</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
<th>2035</th>
<th>% increase 2010 - 2020</th>
<th>% increase 2010 - 2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head and Neck</td>
<td>277</td>
<td>352</td>
<td>452</td>
<td>573</td>
<td>709</td>
<td>882</td>
<td>1078</td>
<td>55</td>
<td>129</td>
</tr>
<tr>
<td>Oesophagus</td>
<td>334</td>
<td>389</td>
<td>453</td>
<td>530</td>
<td>620</td>
<td>718</td>
<td>815</td>
<td>32</td>
<td>73</td>
</tr>
<tr>
<td>Stomach</td>
<td>453</td>
<td>468</td>
<td>491</td>
<td>516</td>
<td>545</td>
<td>569</td>
<td>581</td>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>Colorectal</td>
<td>2111</td>
<td>2422</td>
<td>2863</td>
<td>3402</td>
<td>4065</td>
<td>4805</td>
<td>5537</td>
<td>40</td>
<td>97</td>
</tr>
<tr>
<td>Pancreas</td>
<td>384</td>
<td>459</td>
<td>540</td>
<td>637</td>
<td>751</td>
<td>878</td>
<td>1016</td>
<td>39</td>
<td>91</td>
</tr>
<tr>
<td>Lung</td>
<td>1831</td>
<td>2084</td>
<td>2457</td>
<td>2906</td>
<td>3460</td>
<td>4086</td>
<td>4746</td>
<td>30</td>
<td>70</td>
</tr>
<tr>
<td>Melanoma skin</td>
<td>606</td>
<td>767</td>
<td>985</td>
<td>1247</td>
<td>1556</td>
<td>1918</td>
<td>2323</td>
<td>64</td>
<td>154</td>
</tr>
<tr>
<td>Female breast</td>
<td>2196</td>
<td>2720</td>
<td>3294</td>
<td>3976</td>
<td>4752</td>
<td>5670</td>
<td>6724</td>
<td>46</td>
<td>108</td>
</tr>
<tr>
<td>Gynaecological</td>
<td>1002</td>
<td>1146</td>
<td>1350</td>
<td>1587</td>
<td>1850</td>
<td>2154</td>
<td>2464</td>
<td>38</td>
<td>88</td>
</tr>
<tr>
<td>Kidney</td>
<td>375</td>
<td>501</td>
<td>542</td>
<td>625</td>
<td>731</td>
<td>870</td>
<td>1023</td>
<td>34</td>
<td>91</td>
</tr>
<tr>
<td>Bladder</td>
<td>474</td>
<td>497</td>
<td>543</td>
<td>594</td>
<td>650</td>
<td>705</td>
<td>745</td>
<td>19</td>
<td>42</td>
</tr>
<tr>
<td>Brain and CNS</td>
<td>306</td>
<td>382</td>
<td>448</td>
<td>530</td>
<td>634</td>
<td>757</td>
<td>896</td>
<td>39</td>
<td>97</td>
</tr>
<tr>
<td>Lymphoma</td>
<td>601</td>
<td>804</td>
<td>996</td>
<td>1231</td>
<td>1514</td>
<td>1852</td>
<td>2233</td>
<td>53</td>
<td>129</td>
</tr>
<tr>
<td>Prostate</td>
<td>2415</td>
<td>2871</td>
<td>3437</td>
<td>4093</td>
<td>4828</td>
<td>5668</td>
<td>6559</td>
<td>43</td>
<td>97</td>
</tr>
<tr>
<td>All excl NMSC</td>
<td>15678</td>
<td>19060</td>
<td>23187</td>
<td>28110</td>
<td>33831</td>
<td>40399</td>
<td>47296</td>
<td>47</td>
<td>111</td>
</tr>
<tr>
<td>All cancers</td>
<td>21973</td>
<td>26283</td>
<td>31798</td>
<td>38379</td>
<td>46049</td>
<td>54780</td>
<td>63845</td>
<td>46</td>
<td>108</td>
</tr>
</tbody>
</table>

Source: NCRI, 2008
# Managed Cancer Control Networks and Cancer Centres

<table>
<thead>
<tr>
<th>Network</th>
<th>Cancer Centres</th>
</tr>
</thead>
</table>
| HSE Dublin – North East  | Beaumont
                               Mater                                                  |
| Dublin – Mid Leinster    | St. James’s
                               St. Vincent’s                                          |
| HSE South                | Cork University Hospital
                               Waterford Regional                                     |
| HSE West                 | UCH Galway (satellite: Letterkenny)
                               Limerick Regional                                       |
Why are the costs of cancer drugs growing so rapidly?

- Cost of new drugs reflects cost of research and development + profit.
- Only 1 in 10 drugs succeed in efficacy/tolerability and approval for sale.
- Cost of industry is in range of $1 to $1.3 billion to launch one successfully drug.
- Cost to Ministries of Health: $50-$80,000 per patient/year.
Why are the costs of cancer drugs growing so rapidly?

• New cancer drugs are more effective in curing cancer or prolonging life.
• Treatment regimens last years rather than months.
• New drugs are additive to old drugs.
• New drugs are better tolerated.
• Patients and public have better access to health care information.
Clinical support & monitoring & evaluation of usage

Evidence presentation/published literature

START

Province-wide communication of program Implementation

Tumour Group evaluation of evidence & submission of proposal

BCCA Oncology Drug Budget Management

Funding confirmation & program implementation

Priorities & Evaluation Committee evaluation and ranking of proposals

Estimation of costs & development of oncology drug budget
Provincial Oncology Drug Budget (annual growth)
Patients Receiving Cancer Drug Treatment

<table>
<thead>
<tr>
<th></th>
<th>05/06</th>
<th>06/07</th>
<th>07/08</th>
<th>08/09</th>
</tr>
</thead>
<tbody>
<tr>
<td># of patient</td>
<td>28,013</td>
<td>29,442</td>
<td>30,209</td>
<td>31,591</td>
</tr>
<tr>
<td>% growth</td>
<td>6%</td>
<td>5%</td>
<td>3%</td>
<td>5%</td>
</tr>
</tbody>
</table>
Costs of Drugs by Tumour Group

<table>
<thead>
<tr>
<th>Year</th>
<th>Breast</th>
<th>Central Nervous System</th>
<th>Gastro-intestinal</th>
<th>Genito-urinary</th>
<th>Gynecology</th>
<th>Head &amp; Neck</th>
<th>Leukemia &amp; Bone Marrow</th>
<th>Lung</th>
<th>Lymphoma</th>
<th>Pediatrics</th>
<th>Sarcoma</th>
<th>Skin</th>
</tr>
</thead>
<tbody>
<tr>
<td>05/06</td>
<td>24,576</td>
<td>2,726</td>
<td>15,377</td>
<td>16,037</td>
<td>2,155</td>
<td>335</td>
<td>9,016</td>
<td>3,697</td>
<td>16,798</td>
<td>883</td>
<td>1,414</td>
<td>600</td>
</tr>
<tr>
<td>06/07</td>
<td>33,415</td>
<td>2,938</td>
<td>21,392</td>
<td>16,603</td>
<td>1,570</td>
<td>421</td>
<td>10,111</td>
<td>4,477</td>
<td>18,416</td>
<td>454</td>
<td>1,622</td>
<td>661</td>
</tr>
<tr>
<td>07/08</td>
<td>31,723</td>
<td>3,627</td>
<td>18,021</td>
<td>17,657</td>
<td>1,909</td>
<td>535</td>
<td>12,399</td>
<td>4,981</td>
<td>19,949</td>
<td>1,623</td>
<td>2,762</td>
<td>346</td>
</tr>
<tr>
<td>08/09</td>
<td>32,805</td>
<td>3,780</td>
<td>24,151</td>
<td>19,422</td>
<td>2,143</td>
<td>947</td>
<td>14,691</td>
<td>5,914</td>
<td>22,219</td>
<td>2,247</td>
<td>3,583</td>
<td>423</td>
</tr>
</tbody>
</table>
BCCA 2008/09: Top 10 Drugs

2008/09 Top 10 Oncology Drug Costs

- rituximab (Rituxan®) 14%
- trastuzumab (Herceptin®) 13%
- LHRH agonists 12%
- imatinib (Gleevec®, Glivec®) 10%
- Aromatase Inhibitors 7%
  - oxaliplatin (Eloxatin®) 6%
  - bevacizumab (Avastin®) 5%
  - docetaxel (Taxotere®) 4%
  - octreotide (Sandostatin®) 4%
  - bortezomib (Velcade®) 3%
- Other 22%
Hospital Oncology Drugs: Ireland 2009

• Total Spend: €70 million

• Top 6 Drugs
  Trastuzumab €13 million
  Bevacizumab €11 million
  Rituxumab €9 million
  Docetaxel €5 million
  Velcade €4 million
  Erbitux €4 million
National Plan for Medical Oncology

In development: 2011 onwards

• multidisciplinary human resource planning.

• evidenced-based national guidelines, treatment protocols.

• quality and safety policies for safe drug delivery.

• NCCP Technology Review Committee for oncology drugs and related molecular tests implemented March 2011.

• National oncology drug budget planned for 2012.
Cancer Drug Safety

• National policies and processes for safe drug prescribing, dispensing and administration.
• Development of National evidence-based treatment guidelines.
  - National protocols (250-300)
  - Start with new drugs
  - National Doctors orders
  - National patient information
• National safety processes:
  - Triple check – Doctor, Pharmacist, Nurse
  - Protocol/dose/date/cycle/diagnosis/lab work
• Special processes – vincristine, vesicants, reactions, etc
Baseline Assessment of Oncology Drug Safety Processes

• Steering Committee being set up – last quarter 2011.
• Review panel to be appointed
  - Oncologist
  - Pharmacist
  - Nurse
  - Project Lead
• Self assessment questionnaire re current policies/processes/protocols for hospital and high tech scheme.
• Site visits – All or sample.
National Tumour Groups

Implemented May 2011:
- Gastrointestinal
- Breast
- Genitourinary
- Lung
- Gynaecology

Role:
Development and promulgation of site-specific, evidence-based multidisciplinary clinical practice guidelines.
- Adopt!
- Adapt!
- Innovate!

Initial leadership representatives from:
- Surgery
- Medical Oncology
- Radiation Oncology
- Pathology
- Diagnostic Imaging
- Related experts e.g.
  - Respirology
  - Gastroenterology
Education & Research

- Foster the culture of clinical research participation and innovation across professional disciplines and services.

- Collaborate with professional Colleges and Universities to support continuous professional education.

- Develop primary care skills in prevention, diagnosis, care and follow up to facilitate safe, high quality care in the community.
The Future?
Age standardised survival at 5 years for cancers diagnosed in 2000 - 2002 (all), 2002 - 2006 (Ireland) and 2005 – 2007 (others)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>New South Wales</td>
<td>65.1 66.4</td>
<td>16.2 17.6</td>
<td>87.4 87.8</td>
<td>39.6 39.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Victoria</td>
<td>61.2 65.5</td>
<td>13.6 16.2</td>
<td>86.5 88.5</td>
<td>34.1 34.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alberta</td>
<td>58 58.3</td>
<td>13.1 15.1</td>
<td>84.9 82.6</td>
<td>34.9 36.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>British Columbia</td>
<td>61.5 64</td>
<td>14 17.7</td>
<td>87.5 89.1</td>
<td>37.8 44.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manitoba</td>
<td>59.6 63.3</td>
<td>19.4 20.1</td>
<td>83.9 86.8</td>
<td>37.1 28.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ontario</td>
<td>61.3 64.9</td>
<td>16.7 19.1</td>
<td>86.6 86.4</td>
<td>39.1 43.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark</td>
<td>51.7 55.8</td>
<td>9.6 10.9</td>
<td>81.5 82.4</td>
<td>33.7 36.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norway</td>
<td>58.8 62</td>
<td>11 14.4</td>
<td>83.8 85.5</td>
<td>40.2 39.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swedish regions</td>
<td>60.6 62.6</td>
<td>11.6 16.3</td>
<td>89.3 88.5</td>
<td>NA NA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>54.3 54.9</td>
<td>10.9 11.7</td>
<td>76.2 80.6</td>
<td>NA 32.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>England</td>
<td>51.2 53.7</td>
<td>8 8.7</td>
<td>78.8 81.6</td>
<td>34.3 36.4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Northern Ireland</td>
<td>54.3 55.2</td>
<td>9.7 11</td>
<td>81.6 84.1</td>
<td>37.8 36.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wales</td>
<td>50.3 52.3</td>
<td>7.6 9</td>
<td>76.7 81</td>
<td>33.8 36.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Irish data NCRI 2008 & international data Lancet
Irish cancer survival can improve by up to 10% if we successfully implement well-organised cancer control systems including safe delivery of cancer drugs.
Conclusion:

It takes a team to get to the top and we’re not there yet!

Canadian Rockies, March 2009