Northern Ireland Cancer Registry: Aim, data sources etc

- **Aim:** to provide accurate, timely information on cancers occurring in the population of NI
- **Multiple data sources:** hospital records, path labs, Central Services Agency (GP records), death certs etc
- **Funded DHSS&PS, in QUB**
- **Web page** - [www.qub.ac.uk/nicr](http://www.qub.ac.uk/nicr) has all reports and most up-to-date data
The mast forms part of NIE's communication system. People living near a telecommunications mast in County Tyrone, which was destroyed by vandals, have said they believe it is responsible for cancer-related illnesses in the area.

The mast, which stands in the Upper Cranlome Road area of Ballygawley, was cut down on Saturday evening.

The mast forms part of Northern Ireland Electricity's (NIE) communication system. It is also used by several mobile telephone companies.
Study Aim

• to exploit all available data to investigate the burden of cancer in the region of the Cranlome Telecommunications Mast, with a view to determining whether or not cancer incidence and mortality in the area are higher than the Northern Ireland average.

• “Is there more cancer in Cranlome than expected?”
Is the Cluster true?

1. Specific geographical area/group of people?

2. One type of cancer, vs several different types

3. A rare type vs common cancer

4. Different age-groups to normal

NB: The occurrence of several types of cancer in a group of people or a geographic area generally does not constitute a cancer cluster
Have the NICR ever uncovered greater numbers of cancer cases or deaths than expected?
Pleural Cancer: Mortality rates higher than expected around Belfast (1989-1993) – shipbuilding regions
Lung Cancer: Incidence rates higher than expected in Belfast & Derry district council areas (1993-2001)
Some Causes of Apparent Clusters

- Age e.g. old peoples’ home
- Hereditary/Family e.g. colon, breast
- Radon gas
- Lifestyle e.g. tobacco
- Workplace e.g. asbestos
Cancer is increasing due to:

- Ageing population
- Control of other diseases
- Better diagnosis
Better Diagnosis

Increased opportunities non-invasive investigation
Population more informed

More openness regarding cancer
Lifestyle Changes

- Lung cancer
  - 1912 - 12 deaths
  - 1999 - 900 cases
Cancer is increasing due to:

- Ageing population
- Control of other diseases
- Better diagnosis
- Lifestyle - tobacco, diet, lack of exercise, obesity
- More awareness of cases in community
Cluster Analysis: Steps Involved

- (1) Is there a link between phone masts and cancer?
- (2) Verification of cases
- (3) Analysis of data using special statistical methods
Mobile Phones and Health
September 1999 - May 2000

CHAIRMAN
Sir William Stewart

www.iegmp.org.uk
“Balance of evidence…no general risk to health of people living near to base stations on the basis that exposures are expected to be small fractions of guidelines”

Reviewed all literature to date, especially work carried out since Stewart Report 2000

findings as in Stewart Report – no cause for concern
Cluster Analysis: Steps Involved

(1) Link between phone masts and cancer?
   No evidence to date of an association

(2) Verification of cases
Study Methods(2): Verification of cases
N.Ireland Cancer Registry

- Multiple sources of information on all cancers from hospital records, labs, GPs, CSA, death certificates, etc
- Where there is any doubt, hospital and GP records checked
- Data of international standard
- Data verified by recent checks with GP records
Cluster Analysis: Steps Involved

- (1) Link between phone masts and cancer?
  No evidence to date of an association

- (2) Verification of cases

- (3) Analysis of data using special statistical methods
Study Methods(3): Analysis
Defining the areas studied

1. Dungannon District Council Area  (pop = 47,849)
2. Ballygawley Electoral Ward  (pop = 2,296)
3. “Cranlome” (including Townlands of Cranlome and Ballynahaye)  (pop = 684)
4. Areas representing concentric circles of radius 1, 2, 3, 4 and 5km from the mast site (with the help of Ordnance Survey)
Method – to compare the numbers of cancers observed in each of these pre-defined areas with the number of cancers diagnosed in the wider population of:

1. Northern Ireland
2. Dungannon district council area
   (expected numbers derived from these pops)

Aim: To determine whether there are more cases in the study area than expected
Study Methods: Summary

- Define geographical areas to be studied
- List Cancers monitored
  - all cancers combined (inc. + exc. NMS)
  - 3 most common for males + females
  - brain cancer/lymphomas/leukaemias
- Ascertainment of alleged cases
- Ascertainment of unreported cases
- Analysis of data
Results: Verification of reported cases


- Information obtained from community on 6 (validated against NICR database)
  - 2 not cancer
  - 1 non-malignant condition
  - 3 cancer

- Despite our best efforts - no information on 5 remaining alleged cases
Results: Highlighting unreported cases

- Additional Cases (2001-2002)?

- Within 5km radius of the mast –

  17 additional cases found using NICR database (linked with Ordnance Survey data)

(we presume the 5 alleged cases are contained within these 17 since no additional cases known in community)
<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 non-melanoma skin cancers</td>
<td>(30%)</td>
</tr>
<tr>
<td>3 breast cancers</td>
<td>(15%)</td>
</tr>
<tr>
<td>3 colon</td>
<td>(15%)</td>
</tr>
<tr>
<td>2 rectum</td>
<td>(10%)</td>
</tr>
<tr>
<td>2 leukaemia’s (in older people)</td>
<td>(10%)</td>
</tr>
<tr>
<td>1 lymphoma</td>
<td>(5%)</td>
</tr>
<tr>
<td>1 bladder</td>
<td>(5%)</td>
</tr>
<tr>
<td>1 ovary</td>
<td>(5%)</td>
</tr>
<tr>
<td>1 lung</td>
<td>(5%)</td>
</tr>
</tbody>
</table>

(Readily treatable/rarely cause death)
Distribution of cancer in NI (1993-2001)

**MALES**
- Non-melanoma skin: 25%
- Trachea, Bronchus & Lung: 13%
- Prostate: 11%
- Others: 28%
- Colon: 7%
- Stomach: 4%
- Rectum: 4%
- Bladder: 3%
- Kidney: 2%
- NHL: 3%

**FEMALES**
- Non-melanoma skin: 26%
- Breast: 21%
- Trachea, Bronchus & Lung: 8%
- Others: 22%
- Rectum: 3%
- Colon: 7%
- Uterus: 4%
- Ovary: 3%
- NHL: 3%
- Malignant Melanoma: 3%
Area Results (1)
Comparing Dungannon vs NI

Table 1: Number of cancers observed & expected in Dungannon (1993-2001)

<table>
<thead>
<tr>
<th>ALL CANCERS</th>
<th>Observed (in Dungannon)</th>
<th>Expected (compared with NI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>976</td>
<td>1029</td>
</tr>
<tr>
<td>females</td>
<td>1039</td>
<td>1041</td>
</tr>
</tbody>
</table>

- Lower than expected for all cancers, lung, colorectal (men)
- Lower than expected lung (female)
- No difference from expected:
  - all cancers, breast, colorectal (female)
  - prostate (men)
Area Results(2) Comparing Ballygawley vs NI/Dungannon

Table 2: Number of cancers observed & expected in Ballygawley (1993-2001)

<table>
<thead>
<tr>
<th>Ballygawley compared with:</th>
<th>Obsd.</th>
<th>Expd.</th>
<th>result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Ireland</td>
<td>81</td>
<td>106</td>
<td>lower</td>
</tr>
<tr>
<td>Dungannon</td>
<td>81</td>
<td>103</td>
<td>lower</td>
</tr>
</tbody>
</table>

- Ballygawley vs NI
  - lower than expected for all cancers (inc and exc NMS)
- Ballygawley vs Dungannon
  - lower than expected for all cancers
  - no difference from expected for all cancers exc NMS
Area Results(3)
Comparing Cranlome vs NI/Dungannon

Table 3: Number of cancers observed & expected in Cranlome (1993-2001)

<table>
<thead>
<tr>
<th>Cranlome compared with:</th>
<th>Obsd.</th>
<th>Expd</th>
<th>result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Ireland</td>
<td>32</td>
<td>34</td>
<td>No difference</td>
</tr>
<tr>
<td>Dungannon</td>
<td>32</td>
<td>33</td>
<td>No difference</td>
</tr>
</tbody>
</table>

No difference between numbers of cancers diagnosed in “Cranlome” and wider population of NI or Dungannon
Area Results(4): Circles of radius 1, 2, . . . 5km around the mast

- No evidence of excess risk of cancer in areas encompassing 0-3km and 3-5 km from the mast
Is the cluster true?

1. Specific geographical area/group of people?

2. One type of cancer, vs several different types

3. A rare type vs common cancer

4. Different age-groups to normal

NB: The occurrence of several types of cancer in a group of people or a geographic area generally does not constitute a cancer cluster
So, after a thorough investigation and having identified 20 cancer cases within 5km of the mast (2001-2002):

- This area does not appear to have higher cancer rates than Dungannon or Northern Ireland.

- No evidence of a cancer cluster in the nearer or wider Cranlome area.

- Cancer is a common disease – 1 in 3 people will be diagnosed with cancer in their lifetime.
Acknowledgements

- Steven Evans - Ordnance Survey NI
- Steven McCurdy and Maire Brolly - CSA