Public Health Information System (PHIS)
A User’s Perspective

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What is PHIS?

- PHIS is an integrated Public Health Information System produced by the Information Management Unit at Department of Health and Children (DoHC).

- It combines data from the:
  - Central Statistics Office (CSO)
  - Economic and Social Research Institute (ESRI) – HIPE
  - National Cancer Registry (NRCI)
  - National Psychiatric Inpatient Reporting System (NPIRS)
Why use PHIS? - “One stop shop”

- PHIS version 10 contains 21 data tables of Health Indicators that provide data and information under four main headings:
  - **Population**: Denominator Data and national projections
  - **Fertility**: Number of births, crude rates, percent outside marriage, low birth weight, breast-feeding, and caesarean Delivery
  - **Mortality**: Age Standardised Mortality Data, Years of Potential Life Lost (YPLL), Infant and neonatal Mortality
  - **Morbidity**: Diagnoses, Hospital Discharges and Procedures, Average Length of Stay, National Cancer Registry Summary Data, Psychiatric In-Patients Admissions Data
Why use PHIS?

- **Availability**
  - on the web via Health Well or on CD from the Information Management Unit at the DoHC

- **Easy to use**
  - minimal training required to become a user

- **Manipulation**
  - Data can be exported into Excel or Work and can be mapped

- **Crude Rates & Age standardised Rates**
  - Raw data is available however age standardised and crude rates have also been calculated

- **Comparison**
  - Allows inter County, Health Region and National comparison of data

- **Historical information**
  - approximately 1980

- **Support**
What do we use PHIS for?

- **Service Planning**
  Population data in PHIS is used to provide information on the number of service users we would be expected to target with an intervention.
  - What is the need/demand for health services?
  - How is this demand distributed across the population? e.g. age / sex / geography

- **Measuring Quantity & Quality of Life**
  - Mortality levels are indicators of the general welfare of the population they provide;
    - an indicator of quantity of life,
    - they allow identification of population subgroups in need
  - Linking mortality data and morbidity reflect the quality of life within quantity

- **Evaluating program effectiveness** (e.g. vaccines, TB, cancer etc)
What do we use PHIS for?

- **Service Usage**
  - Information on service usage at the acute hospitals in the NW

- **Providing a Health Profile of our region**
  - Information on health and social wellbeing more accessible to health care workers and the general public

- **Research**

- **General Queries**
A sample of documents published by the NW that have used PHIS data
Standardised mortality trends per 100,000 Population.
All Ischaemic Heart Disease (1988 -1997)
Standardised Mortality Ratios AMI, Ireland and Health Boards, All Ages, 1997 - 2001

Source: PHIS Version 6
Mechanism of Fatal Injury in the HSE-NW Actual Deaths - Most common Categories 1999-2003

Source: PHIS, Version 8
Out-of-hospital cardiac arrest (OHCA) survival in rural Northwest Ireland: 17 years’ experience

Siobhan Masterson, Peter Wright, John Dowling, David Swann, Gerard Bury and Andrew Murphy

Emergency Medical Journal 2011;28:437e438

Table 2  Population survival rates 1992–2007 (4-year intervals)

<table>
<thead>
<tr>
<th>Interval</th>
<th>Average no. of SAVES per year</th>
<th>Population</th>
<th>SAVES rate/1000 population*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1992–1995</td>
<td>3</td>
<td>209698</td>
<td>0.014</td>
</tr>
<tr>
<td>1996–1999</td>
<td>3.25</td>
<td>212826</td>
<td>0.015</td>
</tr>
<tr>
<td>2000–2003</td>
<td>5.25</td>
<td>220310</td>
<td>0.024</td>
</tr>
<tr>
<td>2004–2007</td>
<td>7</td>
<td>233331</td>
<td>0.030</td>
</tr>
</tbody>
</table>

Source: Public Health Information System, V.10 BETA³
*Population average over 4-year period.
Single year age standardised Deaths in Ireland 2005 & Deaths in the CAWT region by area 2005

<table>
<thead>
<tr>
<th>Area</th>
<th>Total Population</th>
<th>Number of Deaths (All ages)</th>
<th>Directly Standardised Death Rate (All causes) (Per 100,000) (±99% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSE DNE (BC)</td>
<td>378,783</td>
<td>2,302</td>
<td>595 (±31.8)</td>
</tr>
<tr>
<td>HSE W (BC)</td>
<td>231,828</td>
<td>1,885</td>
<td>622 (±37.1)</td>
</tr>
<tr>
<td>SHSSB</td>
<td>327,531</td>
<td>2,370</td>
<td>620 (±32.6)</td>
</tr>
<tr>
<td>WHSSB</td>
<td>290,630</td>
<td>2,127</td>
<td>665 (±36.8)</td>
</tr>
<tr>
<td>CAWT</td>
<td>1,228,772</td>
<td>8,684</td>
<td>624 (±17.5)</td>
</tr>
<tr>
<td>NI</td>
<td>1,724,408</td>
<td>14,224</td>
<td>642 (±14.0)</td>
</tr>
<tr>
<td>ROI</td>
<td>4,130,700</td>
<td>27,441</td>
<td>616 (±9.5)</td>
</tr>
<tr>
<td>All Ireland</td>
<td>5,855,108</td>
<td>41,665</td>
<td>624 (±7.8)</td>
</tr>
</tbody>
</table>

Source: NISRA and PHIS 10 Single year age standardised rates
Direct Age Standardisation Method
Calculation of SEs and 95% CIs of Standardised Rate

Instructions:
Insert number of cases for each age group in each health board in the cells shaded in blue.
ASIR, SE and 95% CIs will be automatically calculated for you.

The formula for calculation of SE of Standardised Rate is given by:

$$SE(ASIR) = \frac{(\sqrt{\text{Sum}[N_i^2*p_i*(1-p_i)/n_i]/\text{Sum}N_i})}{\text{Sum}N_i}$$

Where:

- $N_i$ = is the number of individuals in age group $i$ of Standard Population
- $p_i$ = disease proportion in age group $i$ of the study group e.g. HB
- $n_i$ = is the number of individuals in age group $i$ of study group e.g. HB

Note: Standard Population used = WHO standard population

Formula taken from Statistics with Confidence 2nd Ed. Altman et al, p.70
Future Directions

- Providing the data at below county level
  - PCT/ PCN/ED?

- Including Socioeconomic group in mortality data

- All Ireland Data