Trends in mortality in the (West of) Scotland and other parts of post-industrial Europe

David Walsh, Martin Taulbut, Phil Hanlon
June 2008
a.k.a…

- “The Aftershock of Deindustrialisation…”
- Collaborative project between Glasgow Centre for Population Health and NHS Health Scotland
- Published April 2008
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1. Background & aims
Background

• Post-industrial decline (and associated factors) promoted as one of major reasons behind Scotland/WoS’s poor health profile

• Begs question: how have other similarly deindustrialised regions fared?
Project aims

• Identify regions which have undergone similar processes of deindustrialisation
• Compare long-term trends in mortality (as *first* step...)
2. Twenty post-industrial regions in Europe
Identification of areas

• Selection of areas based on combination of:
  – extensive consultation with experts in European public health and European history
  – analysis of regional industrial employment loss
European post-industrial regions
1. Ruhr (D)
2. Saxony-Anhalt (D)
3. Saxony (incl. Chemnitz and Leipzig regions) (D)
4. Wallonia (B)
5. Lorraine (incl. Moselle) (F)
6. Nord-Pas-de-Calais (F)
7. Alsace (F)
8. Silesia (incl. Katowice) (P)
9. N. Moravia (Cz)
10. Limburg (NL)
11. Greater Manchester
12. Tees Valley & Durham
13. Northumb’d, Tyne & Wear
14. Merseyside
15. West Midlands
16. Swansea & S. Wales coalfields
17. N. Ireland
18. West of Scotland
Deindustrialisation in Scotland/the West of Scotland

- 44% decrease in levels of industrial employment* between 1971 and 2005 in Scotland
- Represents a loss of 360,000 industrial jobs
- Not just a West of Scotland phenomenon…
- But more marked in WoS: 62% decrease (from 500,000 to 190,000 industrial jobs)

*‘Industrial employment’: includes mining, manufacturing, utilities and construction
Merseyside

- 63% decrease in industrial employment between 1971 and 2005
- Represents loss of 200,000 industrial jobs
Ruhr area

- 55% decrease in industrial employment between 1970 and 2005
- Represents loss of 700,000 industrial jobs
Nord-Pas-de-Calais

- 43% decrease in industrial employment between 1970 and 2005
- Represents loss of >300,000 industrial jobs
N. Moravia

- 20% decrease in industrial employment between 1993 and 2005
- Represents loss of 80,000 industrial jobs
Katowice (Silesia)

- 55% decrease in industrial employment between 1980 and 2005
- Represents loss of 475,000 industrial jobs
Mortality: how do these regions fare within their own countries?

- We already know that areas within the West of Scotland have the worst health (highest mortality) in the country
- Is this also true of the other post-industrial regions in relation to their parent countries?
Mortality: how do these regions fare within their own countries?

All cause mortality EASRs 2001-03 by English counties (NUTS2), males
Source: Eurostat

All cause mortality EASRs 2001-03 by Netherlands Province (NUTS2), males
Source: Eurostat

All-cause mortality, EASRs 2001-2003 by French région (NUTS2), males
Source: Eurostat

All-cause mortality, EASRs 2001-2003 by German Länder (NUTS1), males
Source: Eurostat; North Rhine-Westphalia Institute for Health and Work (LIGA)
Mortality analysis

• ‘Raw’ mortality data requested from national and regional statistical agencies
• Requested by age, sex, year (25 years if possible) for 17 causes including:
  – Various cancers (all; breast; lung; oesophageal; colorectal; stomach; prostate)
  – Circulatory system diseases (incl. IHD and stroke)
  – COPD and related causes
  – External causes (incl. suicide and MVTAs)
  – Chronic liver disease and cirrhosis
• Data received for all regions, although for more limited time periods in some areas
Results

Two sets of results:
A. Life expectancy (all twenty regions)
B. Detailed age/sex/cause specific mortality analysis (ten regions)
A. Life expectancy
Life expectancy - Ruhr

Estimates of male life expectancy at birth: Ruhr area compared to Scotland, West of Scotland and GGC, 1982-2005 (3-year averages)

Source: GRO(S) mortality & population data (Scotland); NRW lögd mortality & population data (Ruhr)
Life expectancy - Ruhr

Estimates of female life expectancy at birth: Ruhr area compared to Scotland, West of Scotland and GGC, 1982-2005 (3-year averages)

Source: GRO(S) mortality & population data (Scotland); NRW lög mortality & population data (Ruhr)
Life expectancy - French regions


Source: GRO(S) death reg'ns/population estimates (Scotland); INSERM deaths/population data (France)
Life expectancy - French regions


Source: GRO(S) death reg'ns/population estimates (Scotland); INSERM deaths/population data (France)
Estimates of male life expectancy at birth: Saxony compared to Scotland, West of Scotland and GGC, 1983-2005 (3-year averages)

Source: Calculated from data from GRO(S) (Scotland) and the Statistical Office of Free State of Saxony
Saxony – life expectancy

Estimates of female life expectancy at birth: Saxony compared to Scotland, West of Scotland and GGC, 1982-2005 (3-year averages)

Source: Calculated from data from GRO(S) (Scotland) and the Statistical Office of Free State of Saxony
Estimates of male and female life expectancy at birth:
Saxony-Anhalt compared to West of Scotland, 1995-2005 (3-year averages)
Source: Calculated from data from GRO(S) (Scotland) and Landesamt für Verbraucherschutz Sachsen-Anhalt
Life expectancy – N. Moravia

Estimates of male life expectancy at birth, Northern Moravia compared to Scotland, West of Scotland and Greater Glasgow & Clyde, 1982-2005 (3-year averages)

Source: Calculated from GRO(S) and Institute of Health Information & Statistics (CZ) data
Life expectancy – N. Moravia

Estimates of female life expectancy at birth, Northern Moravia compared to Scotland, West of Scotland and Greater Glasgow & Clyde, 1982-2005 (3-year averages)

Source: Calculated from GRO(S) and Institute of Health Information & Statistics (CZ) data
Estimates of male life expectancy at birth: Katowice compared to Scotland, West of Scotland and GGC, 1975-2005 (3-year averages)

Source: Calculated from data from GRO(S) (Scotland) and Cancer Center & Institute of Oncology, Warsaw
Estimates of female life expectancy at birth: Katowice compared to Scotland, West of Scotland and GGC, 1982-2005 (3-year averages)

Source: Calculated from data from GRO(S) (Scotland) and Cancer Center & Institute of Oncology, Warsaw
Life expectancy - Limburg

Estimates of male life expectancy at birth, Limburg compared to Scotland, West of Scotland and Greater Glasgow & Clyde, 1982-2005 (3-year averages)
Source: calculated from mortality & population data from GRO(S) (Scotland) and CBS Statsline (NL)
Life expectancy - Limburg

Estimates of female life expectancy at birth, Limburg compared to Scotland, West of Scotland and Greater Glasgow & Clyde, 1982-2005 (3-year averages)
Source: calculated from mortality & population data from GRO(S) (Scotland) and CBS Statsline (NL)
English & Welsh regions (male)

Estimates of male life expectancy at birth: selected English and Welsh regions compared to West of Scotland, 1988-2005 (3-year averages)

Source: Calculated from data from GRO(S) (Scotland) and ONS (England & Wales)
English & Welsh regions (female)

Estimates of female life expectancy at birth: selected English and Welsh regions compared to West of Scotland, 1988-2005 (3-year averages)

Source: Calculated from data from GRO(S) (Scotland) and ONS (England & Wales)
Estimates of male and female life expectancy at birth, Northern Ireland compared with West of Scotland, 1982-2005 (3-year averages)

Source: calculated from mortality & population data from GRO(S) and NISRA
3. In-depth mortality analysis of ten post-industrial regions
B. Age/sex/cause-specific mortality analysis

- Comparator areas reduced from 20 to 10
- One region per country basis (except Germany)
- Each region has worst/among worst mortality rates in their respective countries
10 post-industrial regions

- Ruhr (West Germany)
- Saxony (East Germany)
- Katowice
- Northern Moravia
- Nord Pas de Calais
- Wallonia
- Limburg
- Northern Ireland
- Swansea & the South Wales Coalfields
- Merseyside
Analysis

• Age standardised rates, 3-year rolling averages
  – here compared to West of Scotland only

• Five age groups:
  – Infants (<1)
  – Children (1-14)
  – Younger working age (15-44)
  – Older working age (45-64)
  – Elderly (65+)

• Presented here in summarised format…
Infant mortality

Infant mortality: infant deaths per 1,000 live births (three year rolling averages)
West of Scotland in context of maximum, minimum & mean rates for selected European regions

Rate per 1,000 live births

- Maximum
- Mean
- Minimum

Number of regions in analysis

Children (1-14)

Children (1-14): all-cause EASRs (3 year rolling averages), 1980-2005, males
West of Scotland in context of maximum, minimum & mean rates for selected European regions
Children (1-14)

Children (1-14): all-cause EASRs (3 year rolling averages), 1980-2005, females

West of Scotland in context of maximum, minimum & mean rates for selected European regions
Working age 15-44
All cause, male

Working age 15-44: all-cause EASRs (3 year rolling averages), 1980-2005, males
West of Scotland in context of maximum, minimum & mean rates for selected European regions
External causes mortality: male working age 15-44 EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions.
Suicide & undetermined intent, male

Suicide (incl. deaths from undetermined intent): male working age 15-44 EASRs (3 year rolling averages), 1983-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions

![Graph showing the age-standardised rate per 100,000 population for suicide and undetermined intent among males in the West of Scotland, with data for selected European regions from 1983 to 2005.]
Suicide & undetermined intent, female

Suicide (incl. deaths from undetermined intent): female working age 15-44 EASRs (3 year rolling averages), 1983-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions.
Chronic liver disease & cirrhosis mortality: male working age 15-44 EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions.
Chronic liver disease & cirrhosis mortality: female working age 15-44 EASRs (3 year rolling averages), 1982-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions.
Working age 45-64
All cause - male

Working age 45-64: all-cause EASRs (3 year rolling averages), 1980-2005, males
West of Scotland in context of maximum, minimum & mean rates for selected
European regions
All cause - female

Working age 45-64: all-cause EASRs (3 year rolling averages), 1980-2005, females
West of Scotland in context of maximum, minimum & mean rates for selected
European regions
All malignant neoplasms mortality: female working age 45-64 all-cause EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions.

Lung cancer mortality: female working age 45-64 all-cause EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions.

Breast cancer mortality: female working age 45-64 all-cause EASRs (3 year rolling averages), 1980-2004; West of Scotland in context of maximum, minimum & mean rates for selected European regions.

Oesophageal cancer mortality: female working age 45-64 all-cause EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions.
IHD mortality: female working age 45-64 all-cause EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions

Cerebrovascular disease mortality: female working age 45-64 all-cause EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions

COPD mortality: female working age 45-64 all-cause EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions

Chronic liver disease & cirrhosis mortality: female working age 45-64 all-cause EASRs (3 year rolling averages), 1982-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions
IHD mortality: male working age 45-64 all-cause EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions

COPD mortality: male working age 45-64 all-cause EASRs (3 year rolling averages), 1980-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions

Suicide mortality: male working age 45-64 all-cause EASRs (3 year rolling averages), 1983-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions

Chronic liver disease & cirrhosis mortality: male working age 45-64 all-cause EASRs (3 year rolling averages), 1982-2005; West of Scotland in context of maximum, minimum & mean rates for selected European regions
Mortality analysis

• Worth remembering:
  – Each region has the highest, or among the highest, level of mortality in their parent country
  – Thus, being “average” isn’t good
  – Had we included the other 10 regions, WoS’s relative position would be even worse
4. Some initial hypotheses/explanations

- NB This is first and foremost a report on mortality trends
- Detailed exploration of health determinant factors will be undertaken as part of the project’s next stage
- Thus, Part Four of the report merely a *tentative* exploration of some relevant issues
4. Some initial hypotheses/explanations

Seven hypotheses briefly examined:
1. Trends affected by data quality issues
2. Trends influenced by an ‘age cohort’ effect
3. Trends influenced by migration
4. WoS has greater income inequalities than other regions
5. Health behaviours are worse in WoS
6. WoS is more deprived
7. WoS has suffered more severe form of deindustrialisation
4. Some initial hypotheses/explanations

Seven hypotheses briefly examined:
1. Trends affected by data quality issues
2. Trends influenced by an ‘age cohort’ effect
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4. WoS has greater income inequalities than other regions
5. Health behaviours are worse in WoS
6. WoS is more deprived
7. WoS has suffered more severe form of deindustrialisation
Migration

• Trends generally flat in all regions, but some exceptions
• WoS: 11% decrease over 20 years
• Saxony: 17% decrease in females - quite perplexing given:
  – evidence that female migrants better educated
  – ‘healthy migrant’ evidence
  – but still very fast improvement in overall health in Saxony
• But more detailed research required to quantify any possible effect
Income inequalities

- Two measures presented in the report, but neither is ideal
- Gini coefficient data not available for all regions of interest (incl. WoS), so country or larger region data used
Income inequalities

Estimated Income Inequality (using the Gini Coefficient),
Selected European Regions: Mid-1990s
Sources: Ezcurra, Pascual and Rapun (2007); Forster, Jesuit and Smeeding (2002)
Health behaviours

• As with other possible explanations, our understanding of role of health inequalities hampered by lack of high quality comparable data.

• However:
  – Other relevant work has highlighted that Greater Glasgow has higher levels of obesity compared to some other relevant regions (e.g. parts of Wallonia and Saxony)
  – In the report we show some limited data for smoking and alcohol consumption....
Health behaviours – alcohol consumption

% adult population drinking alcohol daily, selected European countries: 2003/07
Sources: Eurobarometer 2007; Scottish Health Survey 2003
Deprivation

• Clearly an important issue
• Again, hampered by lack of comparable data across all regions
• But, on balance, seems unlikely that deprivation *per se* explains the higher levels of mortality in Scotland/WoS relative to the other post-industrial areas…
Deprivation

• Regional measures of unemployment and male worklessness show Scotland’s/WoS’s position is advantageous relative to many regions

• Specific mortality and deprivation (Carstairs) analysis undertaken for WoS and Merseyside…
All age SMRs for Clydeside conurbation relative to Merseyside

Adjusting for age & sex only
Adjusting for age, sex and Carstairs deprivation
Severity of deindustrialisation

- Important hypothesis
- Time series data on industrial employment
- ‘Base year’/2005 comparisons
- Number of measures of severity shown in report...
% of industrial employment lost, base year to 2005

- Limburg (1968) - 16%
- Northern Moravia (1993) - 16%
- Northern Ireland (1971) - 16%
- Wallonia (1970) - 16%
- Nord pas de Calais (1970) - 16%
- Saxony (1991) - 16%
- Swansea & SWC (1971) - 16%
- The Ruhr (1970) - 16%
- Katowice (1980) - 16%
- West of Scotland (1971) - 62%
- Merseyside (1971) - 63%
Severity of deindustrialisation

- Deindustrialisation ‘dose’ more serious in West of Scotland compared to the majority of the regions
- More research required (esp. timing/speed)
5. Conclusions

- Health of virtually all comparable European post-industrial regions improving faster than Scotland/West of Scotland
- Trends driven especially by younger age groups (15-44) (especially male) and middle-aged (45-64) females
- This despite (apparently) worse socio-economic profiles
- Detailed information on health determinants now needed to understand what is driving the trends
- This is one of the next steps…
Next steps

• Dependent (to varying degrees) on funding/resources etc etc…

• Collaborative research focussing on the four regions discussed today

• Aimed at:
  – Accessing/analysing/understanding broad health determinant data for these regions compared to WoS
  – Helping to understand the trends presented in the report
Further details

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Martin Taulbut:
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• Tel: 0141 354 2946

• Report available from: www.gcph.co.uk
Germany: the experience of the Ruhr

Conference
Exploring health in Scotland and other parts of postindustrial Europe
Wednesday June 18th 2008

Dr. Wolfgang Hellmeier
Liga, NRW Institute of Health and Work

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http://www.liga.nrw.de/gesundheit.html
Contents

- The Ruhr area; the institute LIGA
- Employment in the Ruhr area
- Population structure
- Health and health determinants
- Policies in the Ruhr area
- Differences between Glasgow and Ruhr?
The Ruhr area within Germany

The Netherlands

Belgium
The Ruhr area within North Rhine-Westphalia

NRW
- 54 districts
- 23 cities
- 31 counties
18 mill. inhabitants

Ruhr
- 15 districts
- 11 cities
- 4 counties
5.3 mill. inhabitants
The Ruhr area, internal structure

No common political authority, but an association of cities (RVR) since 1920

Ruhr kernel
- 7 cities

Ruhr outer regions
- 4 cities
- 4 counties

2.7 million inhabitants

2.6 million inhabitants
LIGA, the institute

- State institute of NRW
- Health monitoring; health reporting; health information
  - If possible data on district level
- prevention
- Consultant of Ministry of Health NRW
Employment in the Ruhr area

Employed, subject to social security insurance

![Graph showing employment statistics for Ruhrgebiet and übriges NRW][1]

Absolute number of employees in the Ruhr area in

- **2004:** 1.5 mill.
- **1980:** 1.8 mill.

[1]: https://example.com/employment-graph.png
Employment in the Ruhr area

Employees in the Ruhr area as percentage of NRW

Anteil der Beschäftigung im Ruhrgebiet an der Beschäftigung in NRW (in %)

RVR Regionalverband Ruhrgebiet
Employment in the Ruhr area

Unemployed persons in the Ruhr region 1994 and 2004

Arbeitslosenquote in Ruhr-City verglichen mit NRW, Trend 1994 - 2004 im Regionalvergleich

Kreise und Städte

Gelsenkirchen
Dortmund
Duisburg
Oberhausen
Essen
Ruhr-City
Hamm
Bottrop
Recklinghausen
Unna
Hagen
Mülheim a.d. Ruhr
Ennepe-Ruhr-Kreis
Wesel

Quote in %

NRW 11%

2004
1994

BK = Ballungskern, BKZ = Ballungsrandzone

Ruhr area

Outer regions

kernel
Welfare recipients in the Ruhr area
(per 1000 inhabitants)

Available income in districts

Population structure
## Population structure

### Persons with foreign nationality in the Ruhr area

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<tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>weiblich</td>
</tr>
<tr>
<td>1</td>
<td>Ballungskern</td>
<td>179 869</td>
</tr>
<tr>
<td>2</td>
<td>Ballungsrandzone</td>
<td>117 945</td>
</tr>
<tr>
<td>3</td>
<td>Ruhr-City</td>
<td>297 814</td>
</tr>
<tr>
<td>4</td>
<td>NRW ohne Ruhr-City</td>
<td>641 111</td>
</tr>
<tr>
<td>5</td>
<td>Nordrhein-Westfalen</td>
<td>938 925</td>
</tr>
</tbody>
</table>

Datenquelle:
Landesinstitut für den öffentlichen Gesundheitsdienst NRW (lügd):
Indikator (L) 2.6, 2004

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### Old age dependency ratio

**Ruhr area Kernel**

**Ruhr area**
Population structure

Regional clusters based on a factorial analysis of socio-demographic and economic data, North-Rhine-Westphalia, 2002

Poverty regions of NRW belong to the Ruhr area
Health

Life expectancy in different age groups

Differenz der Lebenserwartung in Ruhr-City nach Altersgruppen zum NRW-Durchschnitt, 2002 - 2004

Lebenserwartung bei Geburt:
NRW 78,51 Jahre; Ballungskern 77,35 Jahre; Ballungsrandzone 78,23 Jahre; Ruhr-City 77,77 Jahre
Health

Life expectancy in districts of NRW (Ruhr highlighted)

Life expectancy at birth (male)

Life expectancy at birth (female)

Ruhr area Kernel

Ruhr area
Infant mortality in the Ruhr region

Säuglingssterblichkeit in Ruhr-City und NRW ohne Ruhr-City, Abweichungen vom NRW-Durchschnitt in %, Mittelwert 2002 - 2004

Kernel outer regions Ruhr

Ruhr area Kernel

Ruhr area

Health
Health

Avoidable deaths
(Partly attributable to life style)

Ischemic heart diseases

Liver diseases
Avoidable deaths (in districts of NRW): lung cancer (age group 15 – 64)
Health behaviour in districts of NRW

Regular smokers (age > 15, %)

Overweight (age > 15, %)
Policies for the Ruhr area

There were political actions to support the Ruhr area (some taken in whole NRW, but with emphasis on the Ruhr area):

- Some universities were founded (1970s)
- Environmental improvements (against air pollution and for leisure activities)
- Special economic branches were funded
- Cultural events were started in the Ruhr area
- Now “Health in the Ruhr” is a main goal (in economic terms)
Policies for the Ruhr area

Trends in medical staff, the Ruhr area and other parts of NRW: The Ruhr area is better off than the rest of NRW

Physicians
Nurses
nursing staff
Nursing staff children
Nursing staff with low qualification
Differences / similarities between the Ruhr and Glasgow

(Hypotheses and questions, which may explain something):

- General situation is quite similar to Glasgow

Potential reasons for better performance:

- NRW better off than Scotland?
- Ruhr area is larger ➔ more potential for new starts?
- More political actions taken in the Ruhr area?
- Ruhr area is sited in the middle of Europe ➔ an advantage for getting new firms?
Thank you

Open for discussion
Employment in the Ruhr area

Employment trends in industry and service sector

[Graph showing employment trends in industry and service sector for the Ruhrgebiet and NRW regions, with data points representing years from 1980 to 2004. The graph compares employment figures for various sectors, including service sector and industry.]
Comparison of districts of NRW (Ruhr highlighted)
Total mortality

Ruhr region Kernel

Ruhr region
Comparison of districts of NRW (Ruhr highlighted)
Avoidable deaths: ischemic heart diseases (age group 35 – 64)
Comparison of districts of NRW (Ruhr highlighted)

Avoidable deaths: liver diseases (age group 15 – 74)

Ruhr region Kernel

Ruhr region
Nord – Pas-de-Calais
Demography, Industry and Mortality and some comparisons with South East England

Olivier Lacoste, Gilles Poirier, ORS Nord – Pas-de-Calais
Ann Palmer, CHSS University of Kent
# Nord – Pas-de-Calais - demography

<table>
<thead>
<tr>
<th>Administrative Area</th>
<th>Number of People</th>
</tr>
</thead>
<tbody>
<tr>
<td>Région (Nord Pas de Calais)</td>
<td>3,995,871</td>
</tr>
<tr>
<td>Département (2)</td>
<td>2,555,020 Nord and 1,441,568 Pas-de-Calais</td>
</tr>
<tr>
<td>Arrondissements (13)</td>
<td>99,249 (Montreuil) to 1,181,724 (Lille)</td>
</tr>
<tr>
<td>Pseudo-Cantons</td>
<td>4919 (Le Quesnoy) to 93.531 Tourcoing 96,959 Roubaix and 184,647 Lille</td>
</tr>
</tbody>
</table>
Demographics

(1) Overall population (2) Number of city (3) % of régional population (4) Density

- 20% of the population of the region live in the coastal area
- The suburbs (CA) of Calais and the urban (CU) parts of Dunkerque have greater density than the rest of the region

(CA = suburb CU = town)
Nord – Pas-de-Calais - demography

- Nord Pas de Calais is one of the most urbanized regions in France.
- Lille Metropole with its 1.1 millions citizens (one fourth of the population of the region) ranks fourth biggest city in France.
- Other main towns and agglomerations over 100,000 habitants are: Dunkerque, Boulogne sur Mer, Calais, Bethune, Valenciennes, Douai-Lens.
- Nord Pas de Calais is the densest region in France.
- The unemployment rate at regional level is higher than for France (12.2% compared to 9.3%).
- Nord Pas de Calais is the third region in France as for the density of employment in industry. The four main sources of revenue are agriculture, industry, construction and services.
- The GIP per habitant is 82 versus 104 for France that places the Nord Pas de Calais among the poorest French regions.
The People of Northern France

• The region is characterized by the youngest population in the whole of France (28% under 20 years old in 1999).
• Nord Pas de Calais is inhabited mostly by French (including 2.99% immigrants having the French nationality). Foreigners constitute 4.4% of total population in Nord and 1.6% in Pas de Calais. They come in majority from Spain, Portugal and Italy, as well as from Algeria, Morocco and Turkey.
• The reproduction rate in Nord Pas de Calais is high and the migration rate relatively low (87% of the population was born locally)
• The region is characterized by the worst health indicators all over the France.
  – Life expectancy at birth is among the lowest both for men and women, the general mortality rate the highest in France, for both genders.
  – According to the Regional Health Observatory (ORS) SMR for men in the region is 126%.
• It is thought this results from high incidence of diseases related to alcohol, bad nutritional habits of population and high proportion of workers who used to be exposed to risk factors in industrial areas and in mines.
The population is living mainly in an urban environment
(1) Urban population  (2) Peri-urban population (3) rural population

<table>
<thead>
<tr>
<th>Area</th>
<th>Urban (%)</th>
<th>Peri-urban (%)</th>
<th>Rural (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C. U. de Dunkerque</td>
<td>98</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Grand Littoral</td>
<td>97</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Pays des Moulins de Flandre</td>
<td>95</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>C. A. de Saint-Omer</td>
<td>90</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Pays de Saint-Omer</td>
<td>85</td>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>C. A. du Calais</td>
<td>80</td>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>Pays du Calais</td>
<td>75</td>
<td>25</td>
<td>0</td>
</tr>
<tr>
<td>C. A. du Boulonnais</td>
<td>70</td>
<td>30</td>
<td>0</td>
</tr>
<tr>
<td>Pays du Boulonnais</td>
<td>65</td>
<td>35</td>
<td>0</td>
</tr>
<tr>
<td>Pays maritime et rural</td>
<td>60</td>
<td>40</td>
<td>0</td>
</tr>
<tr>
<td>Montreuillois</td>
<td>55</td>
<td>45</td>
<td>0</td>
</tr>
<tr>
<td>Bassin de vie Littoral</td>
<td>50</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>Nord - Pas-de-Calais</td>
<td>45</td>
<td>55</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: Insee: Rgp 1999, traitement ORS Nord - Pas-de-Calais
CA=Communauté d’agglomération, CU=Communauté urbaine

The majority of the population live in an urban environment notably in the suburbs (CA) of Calais (100%)
A young population
Under 20 years / 65 years or more

Most areas show indication of re-juvenation greater than the region as a whole
This is more so in the suburbs (CA) and the countryside around Calais and in the urban parts of Dunkerque

Source Insee : Rgp 1999, traitement ORS Nord - Pas-de-Calais
CA=Communauté d'agglomération, CU=Communauté urbaine

(CA = suburb CU = town)
Apart from St-Omer, the suburbs (CA) have an unemployment rate above that of the region and Coastal area. Unemployment is worse for women.

The suburbs (CA) of Calais attain, for both sexes, an unemployment rate higher than the % required for strongest social minimum.
Typologie des communes en 8 groupes : Guide de lecture

Situations de pauvreté rares ou inexistantes

- **Groupe 1 :** Communes « rurbaines » aux ménages aisés et propriétaires
- **Groupe 2 :** Pauvreté rare, touchant plutôt des personnes isolées
- **Groupe 3 :** Pauvreté rare, touchant plutôt des familles ou des couples

Situations de pauvreté très fréquentes

- **Groupe 4 :** Communes avec un parc social développé, accueillant des familles à bas revenus
- **Groupe 5 :** Communes rurales ou banlieues, avec des personnes isolées en situation de pauvreté
- **Groupe 6 :** Première couronne des grandes villes avec une relative mixité sociale
- **Groupe 7 :** Communes au passé minier ou industriel, avec une pauvreté élevée
- **Groupe 8 :** Villes-centres avec une importante mixité sociale
Graphique 2 : PART DE LA POPULATION COUVERTE(1) PAR UN MINIMUM SOCIAL, PARMI LA POPULATION DE MOINS DE 65 ANS

Revenu minimum d'insertion (RMI)  
Allocation de parent isolé (APF)  
Allocation aux adultes handicapés (AAH)

(1) Population couverte : allocataires et famille éventuelle (conjoint, enfants et autres personnes à charge).  
Calculating the Townsend Score

**Step 1:** The following variables are extracted from the 1991 Census;

- $V_1 = \%$ economically active residents aged 16-59/64 who are unemployed
- $V_2 = \%$ private households which do not possess a car
- $V_3 = \%$ private households which are not owner-occupied
- $V_4 = \%$ private households with more than one person per room

**Step 2:** The distributions of the extracted variables are 'normalised' using the following transformations;

- $N_1 = \ln(V_1 + 1)$
- $N_2 = \ln(V_2 + 1)$
- $N_3 = \sqrt{V_3}$
- $N_4 = \ln(V_4 + 1)$

**Step 3:** The variables are standardised by subtracting the mean and dividing by the standard deviation;

- $S_1 = (N_1 - \text{mean of } N_1)/\text{S.D. of } N_1$
- $S_2 = (N_2 - \text{mean of } N_2)/\text{S.D. of } N_2$
- $S_3 = (N_3 - \text{mean of } N_3)/\text{S.D. of } N_3$
- $S_4 = (N_4 - \text{mean of } N_4)/\text{S.D. of } N_4$

**Step 4:** The Townsend Score is calculated by summing the standardised variables; i.e. Townsend Score

$$= S_1 + S_2 + S_3 + S_4.$$
Using Townsend Scores to compare deprivation across SE England and N France

- More concentrated deprivation in northern France
- Coastal deprivation
- Central belt of deprivation through the mining regions of France
Nord – Pas-de-Calais - Industry

• Present
  – Chemical industry around Dunkerque
  – Port at Calais, Dunkerque
  – Fishing at Boulogne

• Past
  – Bassin des mineurs
Density of employees in industry
Graphique 1 : Évolution du nombre de salariés dans l'emploi total du Nord-Pas-de-Calais entre fin 1990 et fin 2003

Indice base 100 au 31/12/1990

(p) Données provisoires
Source : Insee - Estimations d'emploi au 31 décembre de chaque année
Graphique 2 : Évolution des salariés dans quelques secteurs d’activité du secteur privé marchand

Un ensemble d’activités (à l’intérieur du cône grisé) connaît des fluctuations proches de celles de l’ensemble de l’industrie, avec un indice en 2003 s’échelonnant de 79 à 109. Sur l’ensemble de la période, ont ainsi évolué, par ordre décroissant de l’indice en 2003 :

- Construction navale, aéronautique et ferroviaire : 109
- Industries agricoles et alimentaires : 108
- Chimie, caoutchouc, plastiques : 105
- Industrie des composants électriques et électroniques : 95
- Industries des équipements mécaniques : 92
- Métaux et transformation des métaux : 91
- Industrie des produits minéraux : 91
- Pharmacie, parfumerie et entretien : 90
- Édition, imprimerie, reproduction : 88
- Industries des équipements du foyer : 86
- Industrie du bois et papier : 80
- Industrie des équipements électriques et électroniques : 78

Source : Unedic au 31 décembre de chaque année
Gains / losses of employees in industry during the period 1993-2003

Tableau 2 : Gains et pertes d'effectifs entre fin 1993 et fin 2003 dans l'industrie

<table>
<thead>
<tr>
<th>Industry</th>
<th>Gains/Losses</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habillement, cuir</td>
<td>-12 800</td>
<td>Industrie automobile + 6 800</td>
</tr>
<tr>
<td>Industrie textile</td>
<td>-9 500</td>
<td>Chimie, caoutchouc, plastiques + 1 900</td>
</tr>
<tr>
<td>Industries du bois et du papier</td>
<td>-2 700</td>
<td>Industries agricoles et alimentaires + 1 700</td>
</tr>
<tr>
<td>Métallurgie et transformation des métaux</td>
<td>-2 500</td>
<td>Industrie des composants électriques et électroniques + 1 500</td>
</tr>
</tbody>
</table>

Source : Unedic
Graphique 3 : Part des emplois salariés dans l'industrie des principaux secteurs d'activité au 31 décembre 2003

Source : Insee - Estimations d'emploi 2003
Standardised mortality ratios for the period 1988-1992 (scale: canton; integrated figures)

Source: Inserm. CépiDc. RGP 90.
Mortality indicators for comparison of Nord – Pas-de-Calais and South East England

- More recent mortality data is available in England, older data only available from 1986.
- French mortality data is available at Canton level from 1979 - 2001.
- Agreed that French mortality at Canton level would cover the years 1997-2001 whilst English mortality data would cover 1999-2003.
- Time trend data would be a three year rolling average from 1979 (France) and 1986 (England) at regional and departmental level.
- In France ICD 9 was used for coding deaths between 1979 and 1999 and ICD 10 from 2000; in England ICD 9 was used to the end of year 2000 and ICD 10 from the beginning of 2001.
Trends in mortality – men (top) and women (bottom) all ages

- In both countries the trend is downwards
- Men in NPC have 26% higher mortality than France, England and SE England
- French women have 29-30% lower mortality than women in England but women in NPC are less healthy and similar to England
- The expected variations in SE England are demonstrated i.e. Sussex is more healthy than Kent
Women, mortality 1996-2002 - SMR all cause and all ages

Lissés par la méthode locale de Marshall
Local Linear Empirical Bayes Smoother
SMR : Nord-Pas-de-Calais + south-east english regions = 100
Men: premature mortality (0-64 years)  
1996-2002 – All causes

The mortality in Nord – Pas-de-Calais is higher than in Southeast of England.

In France, some areas show very high rates of premature mortality (areas with old mining industry, areas around Dunkerque, ...)

Lissés par la méthode locale de Marshall using Local Linear Empirical Bayes Smoother
SMR: Nord-Pas-de-Calais + south-east english regions = 100
Mortality from all circulatory diseases – women all ages 1996-2002  ICD9 390-459 adjusted, ICD10 I00-I99)

- Trends for mortality from circulatory disease are similar for men and for women, although male mortality is higher
- Mortality is lower in France than in England, the trend is downwards on both sides of the channel
- Circulatory deaths in NPC are 28% above French national average but below English, in Surrey and Sussex deaths are 13% below English average; for both countries the trend is downward.
Mortality from circulatory diseases - Women All ages, 1996-2002
SMRs for Kent, Medway, East-Sussex, Brighton & Hove, Nord – Pas-de-Calais = 100
Local Linear Empirical Bayes Smoother
Mortality from all cancers at all ages (ICD9 140-208 adjusted, ICD10 C00-C97)

- Female cancer mortality is much lower than male – both countries
- Male cancer mortality is higher in France, female is higher in England

- In Nord Pas de Calais cancer mortality is much higher than the national average
- In SE England it is average (KM) or below (Surrey and Sussex)
Mortality from cancer - Men: All ages, 1996-2002
SMR of Kent, Medway, East-Sussex, Brighton & Hove, Nord – Pas-de-Calais = 100
Local Linear Empirical Bayes Smoother
Mortality from respiratory diseases: Men, all ages 1996-2002
Mortality from respiratory diseases:
Women all ages

**SMR**
- < 50
- 50 - 70
- 70 - 90
- 90 - 110
- 110 - 130
- 130 - 150
- 150 et +

**Proportion**

Comparison of Sante/Public Health
Health and Health Behaviour in Northern France and Southeast England
Correlation of Townsend Scores and Mortality

• Using unweighted data:
  – Strong positive correlation exists between Townsend deprivation score and overall mortality (+) or premature mortality (++), for both regions and for both genders
  – In the Nord Pas-de-Calais, this correlation is weaker for women
  – Statistical relationship between deprivation and overall mortality is stronger for South-East England than for Northern France. This result does not hold for premature mortality

• Using weighted data (ie taking into account differences in sizes of areas):
  – Correlation between deprivation and mortality remains
  – But, the difference between South-East England and Northern France disappears
Health Survey data

Three health surveys

- Enquête Santé 2002-2003 – Extension régionale Nord/Pas-de-Calais
- Kent and Medway Health and Lifestyles survey 2001

<table>
<thead>
<tr>
<th></th>
<th>Nord – Pas-de-Calais</th>
<th>Kent and Medway</th>
<th>East Sussex, Brighton &amp; Hove</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>4.0 million</td>
<td>1.6 million</td>
<td>740,000</td>
</tr>
<tr>
<td>Sample</td>
<td>4,033</td>
<td>8,071</td>
<td>5,936</td>
</tr>
<tr>
<td>Timing – Date</td>
<td>October 2002 -</td>
<td>June 2001</td>
<td>May 2003</td>
</tr>
<tr>
<td></td>
<td>September 2003</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 waves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0+</td>
<td>16+ registered with GP</td>
<td>18+ registered with GP</td>
</tr>
<tr>
<td>Weighting</td>
<td>Official INSEE</td>
<td>Age and gender</td>
<td>Age and gender</td>
</tr>
</tbody>
</table>
In general, would you say your health is.. (women)

Health Status - Etat de Sante
Female - Feminin (by age)

ESBH and K&M
Nord –Pas-de-Calais

0%  20%  40%  60%  80%  100%

18-24  25-44  45-64  65-74  75+

Excellent - Excellente  Very good - Très bonne  Good - Bonne
Fair - Médiocre  Poor - Mauvaise

Source: Enquete Sante 2002-3; Kent and Medway Survey 2001; Health Counts 2003
Results: Prevalence of Health Behaviours

Age standardised prevalence rates
Taux de prévalence standardisé sur l’âge

<table>
<thead>
<tr>
<th>Behaviour</th>
<th>N-PdC</th>
<th>ES-BH</th>
<th>K-M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily smoker</td>
<td>18%</td>
<td>13%</td>
<td>9%</td>
</tr>
<tr>
<td>Daily drinker</td>
<td>16%</td>
<td>12%</td>
<td>15%</td>
</tr>
<tr>
<td>Physical activity</td>
<td>21%</td>
<td>20%</td>
<td>20%</td>
</tr>
<tr>
<td>Obesity</td>
<td>79%</td>
<td>70%</td>
<td>60%</td>
</tr>
<tr>
<td>Fruit and vegetable</td>
<td>39%</td>
<td>36%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Legend:
- Daily smoker - Fumeur quotidien
- Daily drinker - Buveur quotidien
- Physical activity - Activité physique
- Obesity - Obésité
- Fruit and vegetable - Fruits et légumes
Summary 1

- All cause mortality – English women are 33% higher than French women
- Both countries are experiencing a reduction in female mortality
- Nord – Pas-de-Calais has a worse mortality than France as a whole whereas south east England is lower than English national rate
- Women in Nord – Pas-de-Calais experience similar all cause mortality rates and trends to South East England
- There is more variation across south east England (due to methodology – electoral wards are smaller)
- Premature mortality in Northern France is higher
Summary 2

- Cancer mortality is low for both countries and very little variation, some coastal wards in England have SMRs above 100.
- For circulatory disease, northern France is 26% higher than France as a whole, but lower than South East England which is at or below England national rate.
- There is greater variation in south east England with pockets of high mortality.
- There are some regions in south east England with very high respiratory mortality – these are mostly in the deprived coastal wards however any theory this might be due to port and mining health is disproved by low rates amongst women living in the industrial and mining regions in France unless there are lifestyle differences for example it is reported that french miners bath and change at the pit head.
Transition and health in Central and Eastern Europe

Martin Bobak

University College London
Central and Eastern Europe in 1990

From Unicef
(Data from UNICEF)
Trends in Gini after 1989

From Unicef, Social Monitor 2003
Change in GDP after 1989 by country

Index, 1989 = 100

From Unicef, Social Monitor 2003
Impact of transition differs by:

- Geography
- Socioeconomic status
- …?
CHANGE IN LIFE EXPECTANCY BY INCREASE IN INCOME INEQUALITY, 1989-95

Marmot & Bobak, BMJ 2001
CHANGE IN LE BY SOCIAL STRESS IN 12 RUSSIAN REGIONS, 1989-94

*UNEMPLOYMENT, LABOUR TURNOVER, CHANGE IN MARRIAGE AND DIVORCE RATE  (Cornia 1997)
Mortality gradient in the Czech Republic in 1990: North to South

(From Dzurova, Health & Place 2000)
Mortality gradient in the Czech Republic in 1996: East to West

(From Dzurova, Health & Place 2000)
Trends in probability of survival in men by education (relatives’ study)

**45 p20** = probability of living to 65 yrs when aged 20 yrs
Age-sex adjusted prevalence of poor self-rated health and life expectancy at age 15 (r -0.73, p=0.005, n=13)

Bobak et al, JECH 2007
Odds ratios (95% confidence intervals) of poor health by societal characteristics in different multi-level models

<table>
<thead>
<tr>
<th>Societal characteristic, unit of effect</th>
<th>Odds ratio adj. for age and sex</th>
<th>Odds ratio adj. for age, sex and individual SES</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP PPP, per $5000 increase</td>
<td>0.75 (0.65-0.86)</td>
<td>0.79 (0.68-0.93)</td>
</tr>
<tr>
<td>Annual growth, per 1%</td>
<td>0.90 (0.83-0.98)</td>
<td>0.93 (0.85-1.02)</td>
</tr>
<tr>
<td>Max. economic contraction, per 10%</td>
<td>1.10 (1.01-1.20)</td>
<td>1.08 (0.99-1.19)</td>
</tr>
<tr>
<td>Gini coefficient, per 0.1 unit increase</td>
<td>1.15 (0.95-1.39)</td>
<td>1.12 (0.93-1.34)</td>
</tr>
<tr>
<td>Corruption index, per 1 unit (0 to 10)</td>
<td>1.20 (1.08-1.33)</td>
<td>1.15 (1.03-1.29)</td>
</tr>
<tr>
<td>Homicide rates (per 10/100,000 increase)</td>
<td>1.09 (1.00-1.19)</td>
<td>1.08 (0.98-1.18)</td>
</tr>
<tr>
<td>Ratio of 80&lt;sup&gt;th&lt;/sup&gt;/20&lt;sup&gt;th&lt;/sup&gt; income percentile, per 1 unit increase</td>
<td>1.13 (0.92-1.39)</td>
<td>1.05 (0.84-1.32)</td>
</tr>
<tr>
<td>Ratio of 90&lt;sup&gt;th&lt;/sup&gt;/10&lt;sup&gt;th&lt;/sup&gt; income percentile, per 1 unit increase</td>
<td>1.02 (0.95-1.11)</td>
<td>1.00 (0.93-1.09)</td>
</tr>
</tbody>
</table>

Bobak et al, JECH 2007
The Czech HAPIEE study
Czech HAPIEE Study

- 4,123 men and 4,729 women
- Response rate 59%
- Random population samples
- Aged 45-69 at baseline (2002-2005)
- 7 cities in total
- 2 cities in North Moravia (Havírov & Karvina)
Life expectancy at birth in Czech town in 2001-2005

![Graph showing life expectancy at birth in different Czech towns for men and women between 2001 and 2005. The graph indicates a trend of increasing life expectancy over the years for both genders in all towns.]
Karvina / Havírov (North Moravia)

• Centre of mining & heavy industry before 1990
• Massive closures of enterprises
• Huge losses in employment after 1990

• In top 10 cities by
  – Unemployment (13%, highest in the country)
  – Crime
  – Out-migration
  – Quality of living
  – …
Do these differentials exist in micro-data?

- Health
- Health behaviours / risk factors
- Socioeconomic status
- Psychosocial factors

And…

… do these factors explain the health disadvantage?
Prevalence (%) of health outcomes by town

Karvina vs Other
Health behaviours and risk factors by town (%)

- Smoking
- Daily alcohol
- CAGE 2+
- Hypertension

Karvina
Other

Men
Women
Psychosocial factors by town (%)

- Depression
- Feel unsafe night
- Membership

Karvina: Red
Other: Blue

Men
- Depression: 20%
- Feel unsafe night: 15%
- Membership: 30%

Women
- Depression: 30%
- Feel unsafe night: 25%
- Membership: 20%
Do these factors explain differences in poor self-rated health?
Life expectancy vs. self-rated health

Men (r=-0.87)

Women (r=-0.57)
## Odds ratios of poor health for Karvina vs. other towns

<table>
<thead>
<tr>
<th>Adjusted for</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1.66 (1.30-2.11)</td>
<td>1.33 (1.05-1.70)</td>
</tr>
<tr>
<td>Age + RF</td>
<td>1.54 (1.15-2.06)</td>
<td>1.18 (0.88-1.58)</td>
</tr>
<tr>
<td>Age + SES</td>
<td>1.43 (1.10-1.86)</td>
<td>1.10 (0.84-1.43)</td>
</tr>
<tr>
<td>Age + PS</td>
<td>1.58 (1.20-2.08)</td>
<td>1.30 (0.99-1.70)</td>
</tr>
<tr>
<td>Fully adjusted</td>
<td>1.24 (0.89-1.72)</td>
<td>0.90 (0.64-1.26)</td>
</tr>
</tbody>
</table>
Odds ratios of poor SRH for Karvina vs. other towns

Adjusted for:
- age
- age + RF
- age + SES
- age + PS
- Fully adj.
Odds ratios of poor SRH for Karvina vs. other towns

Adjusted for:
- age
- age + RF
- age + SES
- age + PS
- Fully adj.
Conclusions

• Societal transition had differential effects
  – by socioeconomic group
  – by geography
• Increasing inequalities
• Can affect health of whole populations
• A number of potential mediators
• Explanation requires individual level data
Exploring health in Scotland and other parts of post-industrial Europe

The experience of Poland

Witold Zatoński
Marta Mańczuk

Royal College of Physicians and Surgeons of Glasgow
232-242 St Vincent Street, Glasgow G2 5RJ
Wednesday June 18th 2008
“Where observation is concerned, chance favours only the prepared mind”

“Dans les champs de l'observation le hasard ne favourise que les esprits préparés”

Louis Pasteur
French biologist & bacteriologist (1822 - 1895)
• Closing the Gap - Reducing Premature Mortality. Baseline for Monitoring Health Evolution Following Enlargement (HEM) – action no 2003121

• The final report will be available by the end of June 2008 at the project website: www.hem.waw.pl
History of the project

• The project was submitted to the European Commission and has been accepted among other European Union programs in the field of public health for years 2003-2008 (grant agreement no 2003121)

• End of the project – April 2008
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- Wojciech Tarkowski
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Ann-Sofie Karlsson, Ewa Halicka, Johan Lund, Jacek Moskaliewicz, Jayadip Patra, Gerard Pavillon, Svetlana Popova, Lorenza Scotti, Beniamin Taylor
Aims of the project

• To improve understanding of underlying causes of health differences between the new and old EU member states.
• To identify and quantify major health determinants responsible for the gap existing between the new and old EU member states.
• To define priorities for intervention: general (all accession countries) as well as country-specific;
• To produce a Blueprint including major indications for public health intervention /action plan for intervention/;
• To present the Blueprint to the European Commission and Governments of accession countries, in order to finalize priorities for intervention on a public health scale.
• To widely disseminate the evidence- and science-based data on health status and the possibilities for reducing premature mortality, especially in all accession countries in local languages.
• Geographic scope:
  – The project includes 25 European Union countries with a special reference to EU10: Poland, Czech Republic, Slovakia, Slovenia, Latvia, Lithuania, Estonia, Hungary – EU members since May 2004 (Malta and Cyprus excluded from the analysis) + Romania, Bulgaria – EU members since January 2007; and to EU15 countries (EU members before 2004). The Russian Federation is included in some comparisons.

• Age groups of interest:
  – Basic age groups: 20-44, 45-64, for some conditions 20-64 and for comparison 65+, 0+

• Time scope:
  – Longitudinal epidemiological descriptive analyses: the period of interest consists mainly of time trends we have been using data for EU10 and EU15 countries since the year 1969 until the year 2002;
  – Cross sectional analyses: of attributable burdens the year of reference was 2002, for considered risk factors distributions and for mortality.
History of health in Poland
Percentage of deaths before the age of 5 years
Poland vs. England and Wales, both sexes
Total mortality trends in Poland at age 0-14 years at age 15-64 years, males

- Divergence of mortality trends in age groups in Poland
- Dramatic increase in young and middle-aged adults
- Systematic decline in age group 0-14 years
Male deaths at age 15-59, 1959-1990

Lung cancer

Cardiovascular diseases

External causes

Deaths / 100,000

Deaths / 100,000

Deaths / 100,000


1959 1969 1979 1989

Poland

Finland

Poland

Finland

Poland

Great Britain
Total mortality in Poland and UK, 1963-1991
PROBABILITY OF DYING BY Region, 1990
(data adapted from Murray i Lopez, 1994)

Males, age 15-59

Males, age 0-14

- Communicable diseases
- Non-Communicable diseases
- Injuries

EME – Established Market Economies
POL - Poland
CHN - China
LAC – Latin America and the Caribbean
OAI – Other Asia and Islands
MEC – Middle Eastern Crescent
IND - India
SSA – Sub-Saharan Africa
Cigarette consumption per capita, Poland 1923-1980

- Dramatic increase of cigarette consumption
- In the 1980s in Poland there was observed the highest tobacco consumption in the world
Recorded per capita consumption of alcohol, Poland 1950-1980

- In the post war period alcohol consumption had been increasing dramatically until 1980
- Form 3 to almost 9 litres of pure alcohol per capita per year
Caloric intake in Poland in the period 1936-1980 (kcal/cap/day)

- Linear increase of caloric intake in Poland
- Level appreciably higher than in the EU15

This dramatic increase of premature mortality took place during increased access to medical service.

<table>
<thead>
<tr>
<th></th>
<th>FSE*</th>
<th>EME**</th>
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<tbody>
<tr>
<td>Number of physicians per 1,000 inhabitants</td>
<td>4.7</td>
<td>2.5</td>
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<tr>
<td>Number of hospital beds per 1,000 inhabitants</td>
<td>11</td>
<td>8</td>
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</tbody>
</table>

* Former socialist economies  
** Established market economies

Democracy is healthier
Time trends of mortality from selected causes, Polish men aged 20-64 years

- For 30 years, in the period 1960-1991 dramatic increase of premature mortality from non-communicable diseases
- Infectious diseases are fully controlled
- Since 1991 cardiovascular disease, cancer and injuries mortality has been declining
Cardiovascular disease mortality in Poland and Finland in the period 1963-2002

Poland

Finland

men

women
Lung cancer mortality in Poland and the UK, men aged 20-64 years, 1959-2003

- Extraordinary increase of lung cancer mortality in Poland until early 1990s (unlike as in the UK)
- After 1991 decline parallel to the one observed in the UK
Life expectancy at birth, Poland, men, 1963-2002*

- Since the beginning of the 1990s great systematic increase of life expectancy at birth in Poland

* 5-year moving average
Cigarette consumption per capita, Poland 1923-2004

- In the 1980s in Poland there was observed the highest tobacco consumption in the world.
- In mid 1990s the consumption of cigarettes began to fall down, first due to economic crisis and then due to health intervention.
Daily smoking, males and females 20+ years
Poland 1974-2004

- In early 1980s there was a very big proportion of smokers in Polish population: almost 70% of adult men and 32% of adult women were daily smokers.

- Since then, the percentage of daily smokers has been declining, firstly due to economical crisis and then as a result of health intervention.
Recorded per capita consumption of alcohol
Poland 1950-2001

- In the post war period alcohol consumption had been increasing dramatically until 1980
- When the martial law was introduced and alcohol was rationed, the consumption dropped and since then there has been stagnation observed
Consumption of vegetable oils in Poland and EU15 (kg/cap/year)

- Dramatic increase of vegetable oils consumption since early 1990s
- In 2002 consumption of vegetable oils reached the average level in the EU15 countries
Consumption of vegetable oils and butter in Poland in 1970-2000 (kg/capita/year)

- One of the hypotheses, which tries to explain cardiovascular disease mortality decline, is a change of fat consumption structure.

- At the beginning of the 1990s, consumption of vegetable oil began to rise dramatically with simultaneous decline of butter consumption.
Availability of fruits and vegetables (antioxidants) whole year through

Consumption of exotic fruits in Poland, 1983-2002

- Exponential increase of exotic fruits consumption
### Poland, women

<table>
<thead>
<tr>
<th>HEALTH INDICATOR</th>
<th>Best in EU10</th>
<th>Worst in EU10</th>
<th>Poland</th>
<th>Change</th>
<th>APC*</th>
<th>Rank of APC</th>
<th>BEST</th>
<th>Rank within EU10</th>
<th>WORST</th>
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<tbody>
<tr>
<td>Life expectancy at birth (years)</td>
<td>1990 77.8</td>
<td>2002 80.5</td>
<td>73.2</td>
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<tr>
<td>Risk of dying, age group 20-64 years (%)</td>
<td>1990 12.2</td>
<td>2002 10.1</td>
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<tr>
<td>All cause mortality</td>
<td>1990 232</td>
<td>2002 189</td>
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* APC - Annual percentage change in the period 1990-2002
# for life expectancy at birth it is the difference between value for 2002 and 1990 expressed in years
& for risk of dying it is the difference between value for 2002 and 1990 expressed in percentage points

Very good 🌞 Improvement ☁ Worsening 🌧 Very bad 🌊
### Poland, men

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* APC - Annual percentage change in the period 1990-2002
# for life expectancy at birth it is the difference between value for 2002 and 1990 expressed in years
& for risk of dying it is the difference between value for 2002 and 1990 expressed in percentage points
The same phenomena which were observed in Poland apply as well to Katowice.
Total mortality in Poland (and Katowice) and UK, 1963-2002
Thank you

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www.hem.waw.pl