

# **Cancer control with special attention to CRC – case of Poland**

**A few epidemiological remarks and reflections**

Witold Zatoński

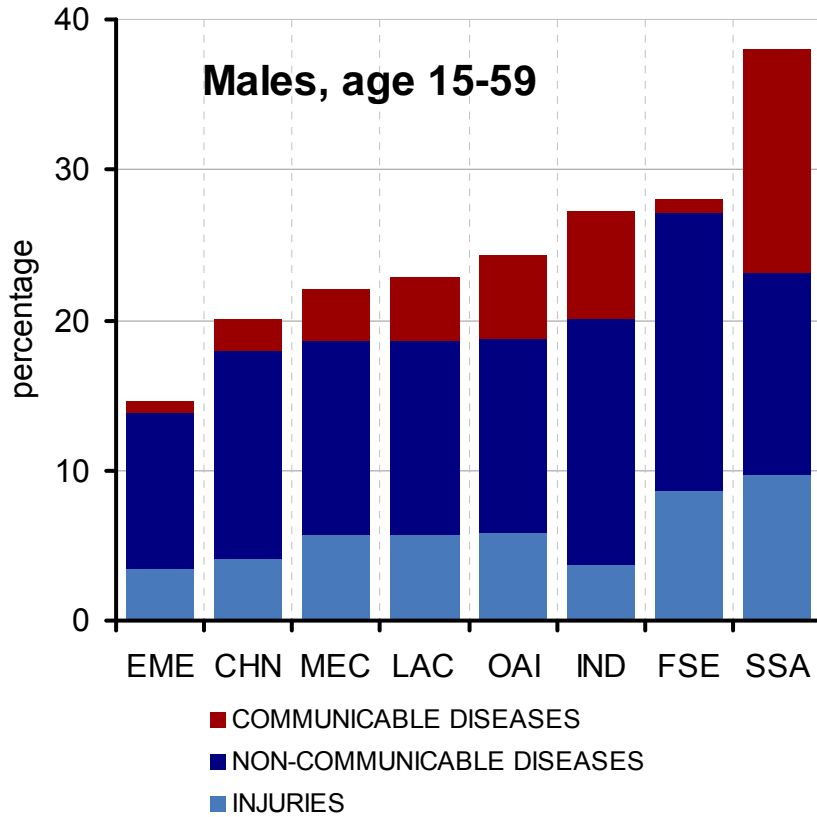


- 1990: Health / premature mortality in Eastern Europe worse than in India, China, etc.
- “Democracy is healthier” (1989-2014); Huge health gain in countries of Eastern part of European Union.
- Huge cancer diversity. Challenges. Overdiagnosis.
- CRC control – we all share the same problems.



# PROBABILITY OF DEATH BY REGION, 1990

(data adapted from Murray and Lopez, 1994)



In 1990 the chance of a 15 year old boy to reach the age of 60 was lower in Eastern Europe than in India or China.

<b>EME</b> - Established Market Economies	<b>OAI</b> - Other Asia and Islands
<b>FSE</b> - Former Socialistic Economies	<b>MEC</b> - Middle Eastern Crescent
<b>CHN</b> - China	<b>IND</b> - India
<b>LAC</b> - Latin America and the Caribbean	<b>SSA</b> - Sub-Saharan Africa

## HEM - research project 2004-2008 (no 2003121)

Closing the health gap  
in European Union



- **Objective:** To identify and quantify health gap between eastern and western part of European Union and to determine how much of this gap is attributable to different causes of death and risk factors.
  - **Eastern part of the EU:** the new EU member states from central and eastern Europe - Bulgaria, Czech Rep., Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia (**EU10**)
  - **Western part of the EU:** the “old EU” – Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, UK (**EU15**)

The final report is available at the project website [www.hem.waw.pl](http://www.hem.waw.pl)



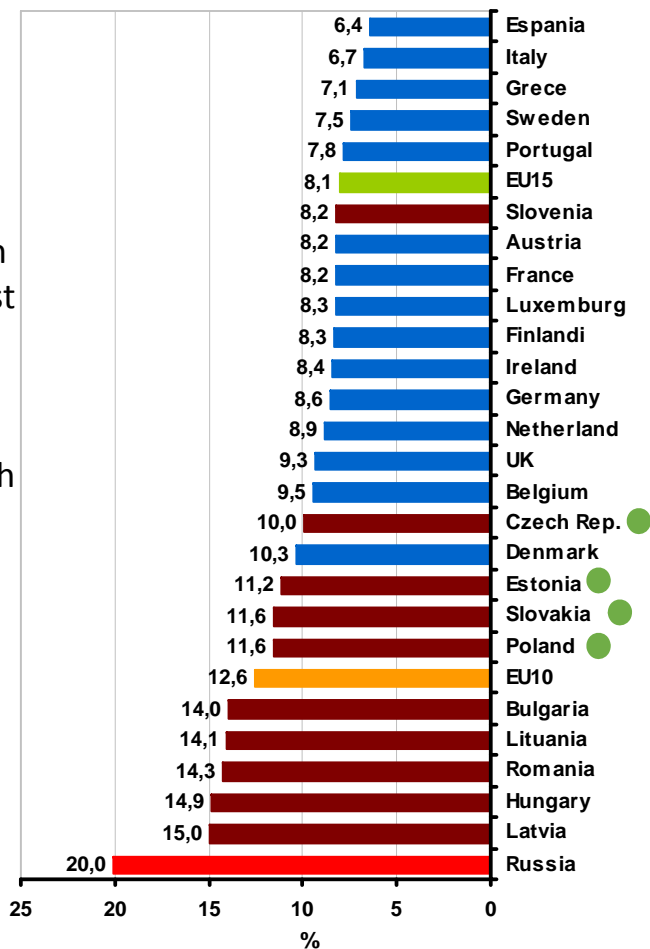
# Probability of death before 65 years of age, 2010\*

*East/West health gap is closing ... but we must accelerate...*

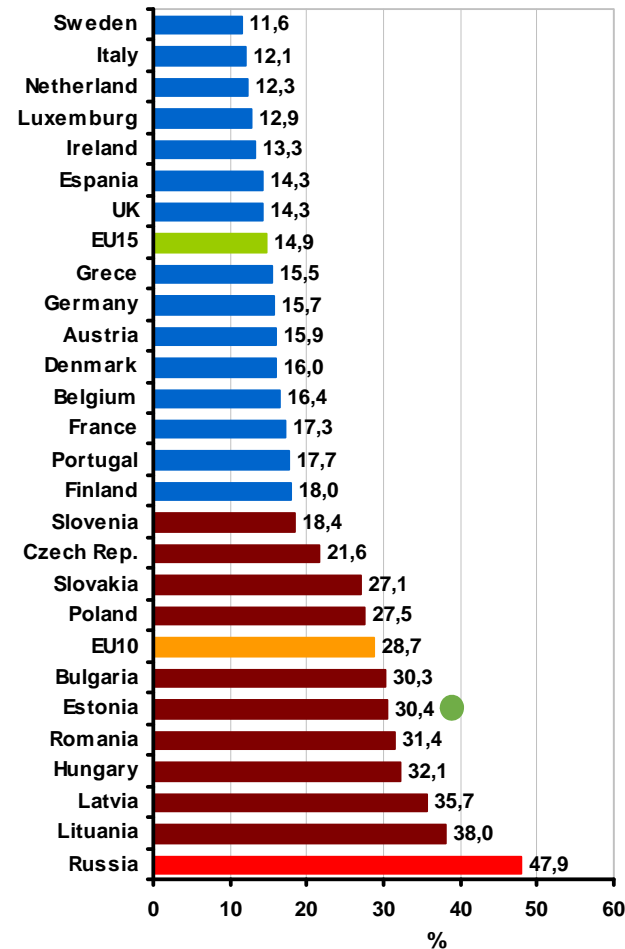
Democracy is healthier.  
Huge health gain in countries of Eastern part of EU in the last 25 years, but ...

The biggest health gain in EU – in Czech Republic and Estonia (halving premature mortality)

Female



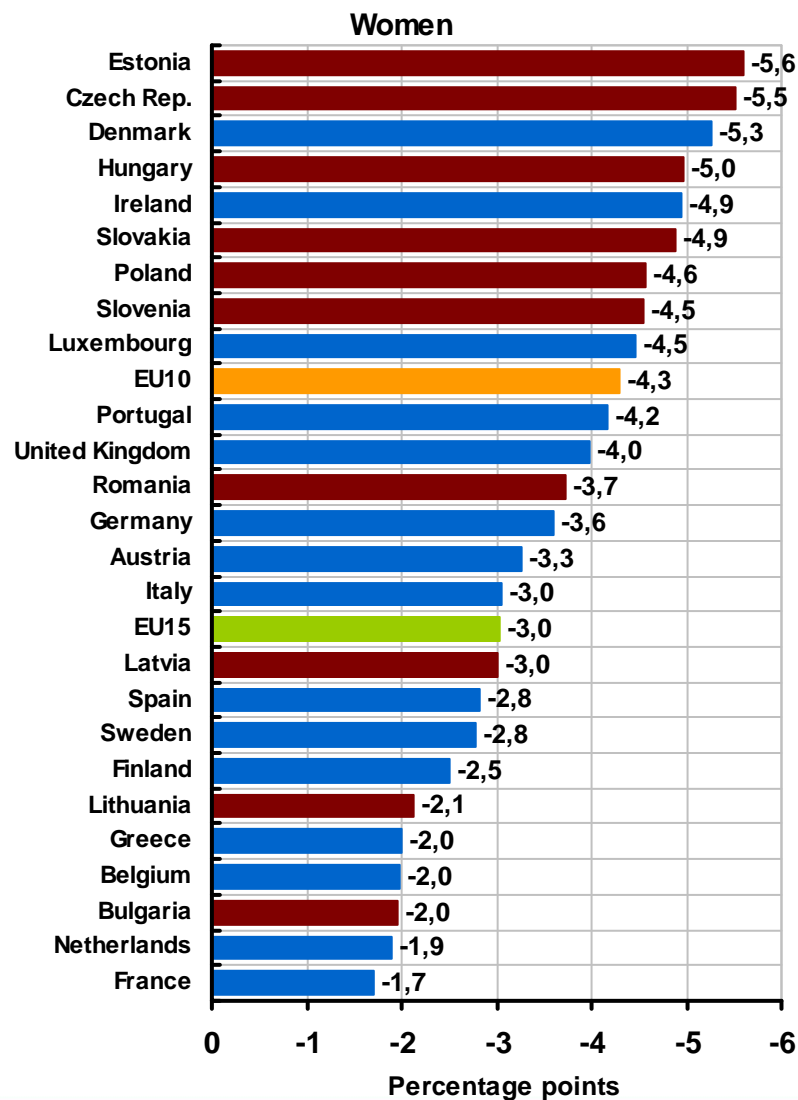
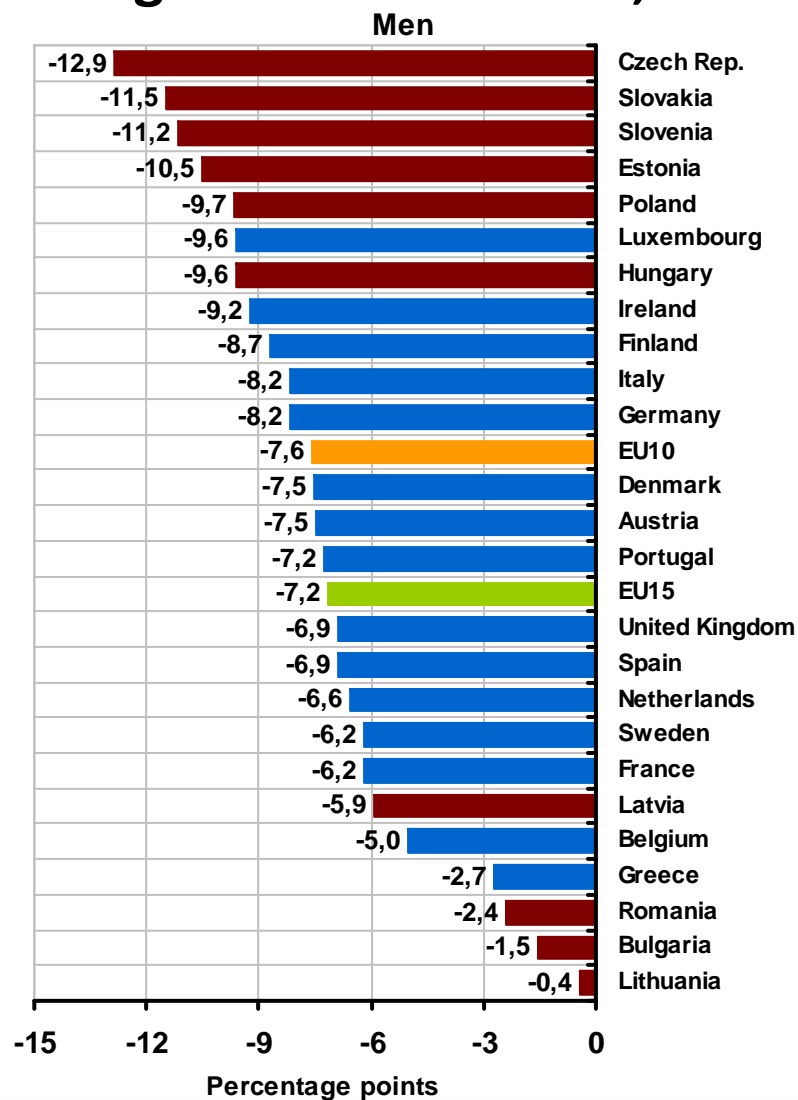
Male



\* 2009: Belgium, France

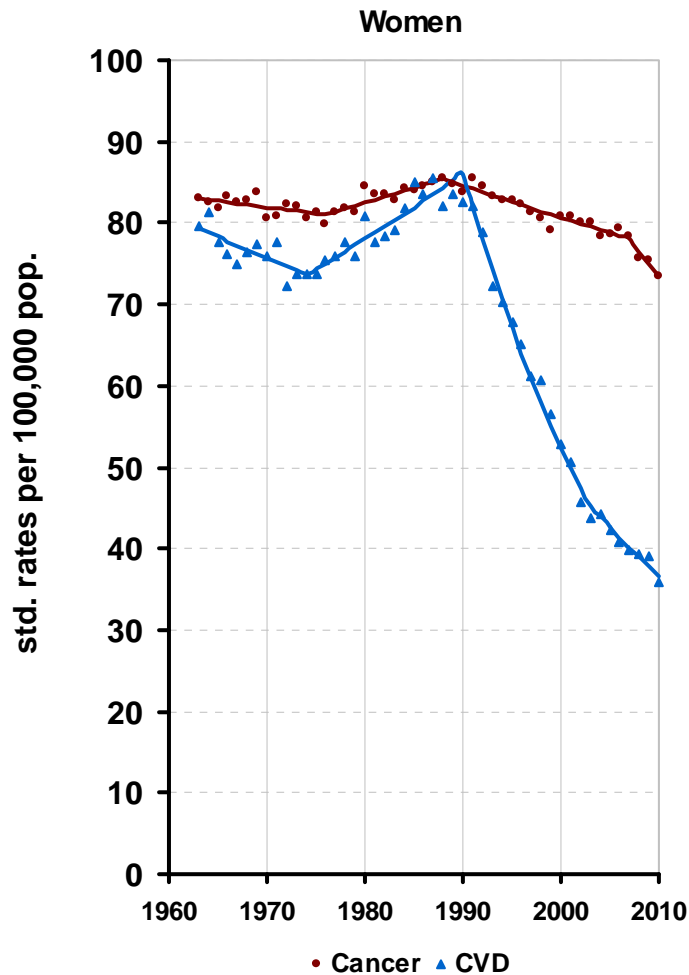
Source: Zatoński W (ed.) with Mańczuk M, Sulkowska U, and the HEM Project team. Closing the health gap in European Union. Cancer Center and Institute of Oncology, Warsaw, 2008. Available from: <http://www.hem.waw.pl>

# Changes in risk of death, 20-64, 1990 vs. 2010



# Cancers will be the main cause of death in Poland in the next decade

Cardiovascular disease  
revolution



CVD and cancer mortality\*,  
Poland, 0-64

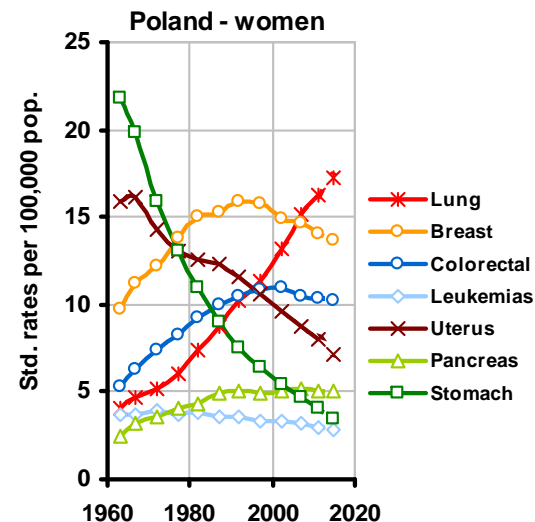
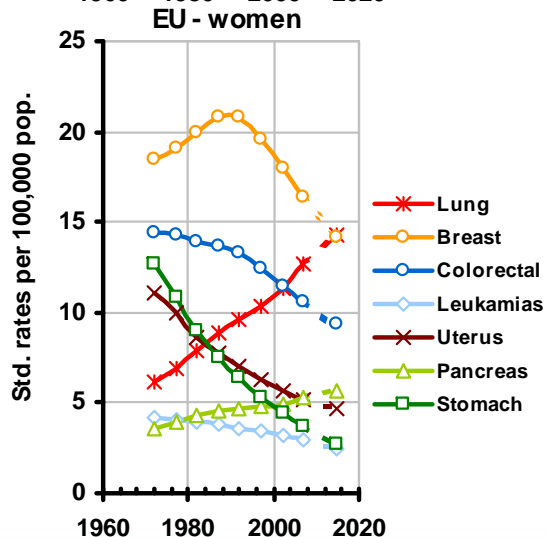
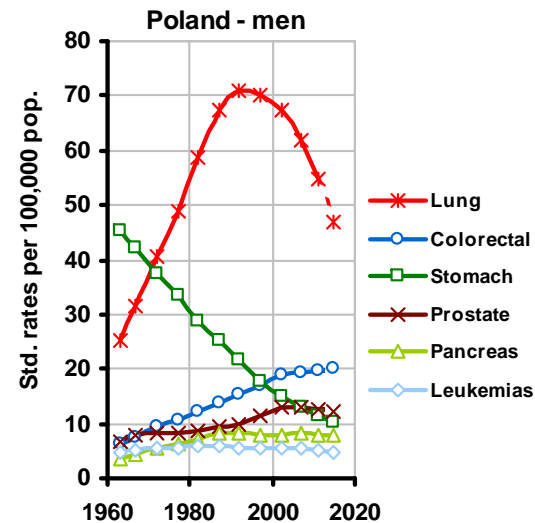
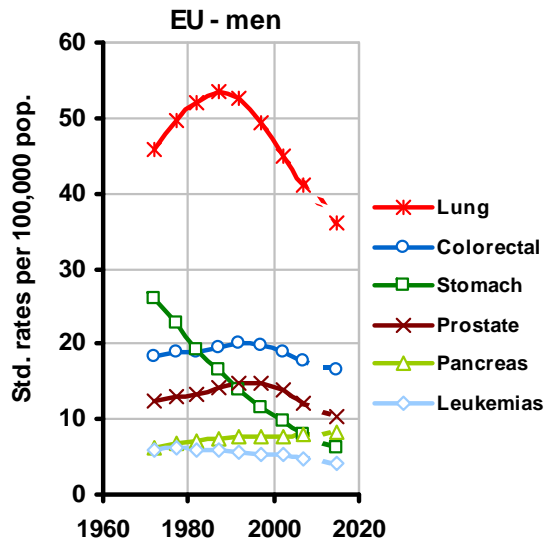
Cancer became number  
one cause of premature  
mortality

\* Standardised (based on European Standard Population) mortality rates per 100,000 pop.

# Mortality time trends from selected cancers in Poland and in EU

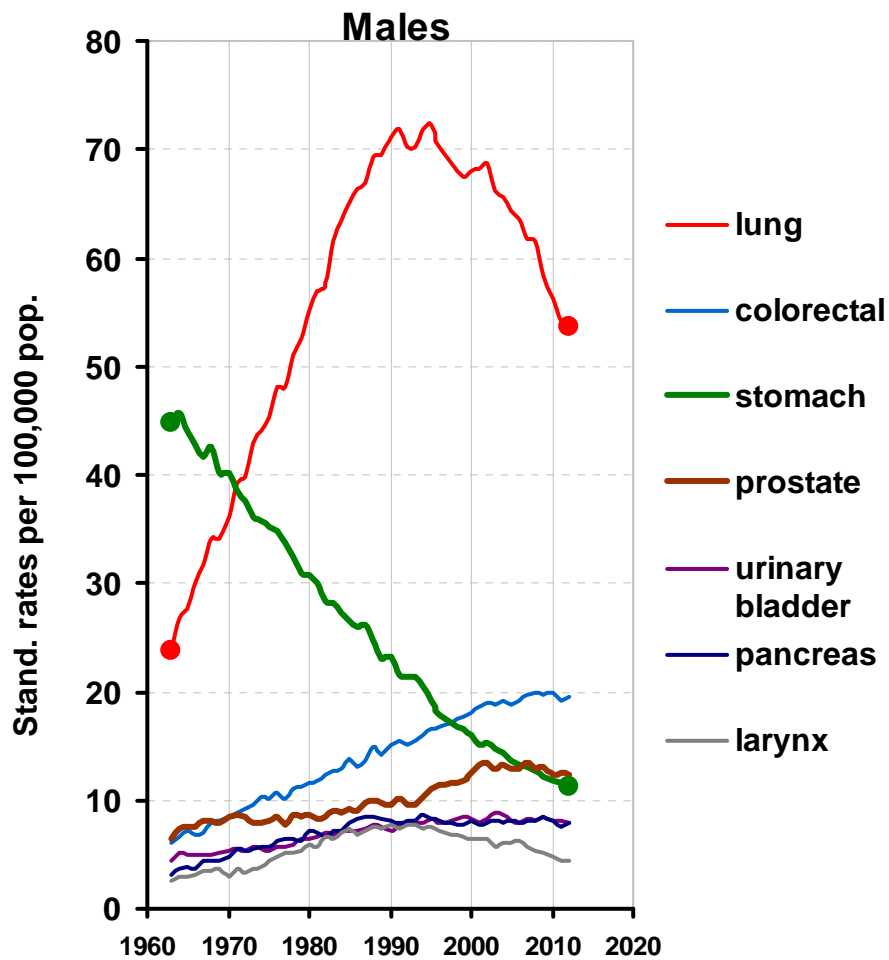
Huge cancer diversity

Importance of molecular diagnosis



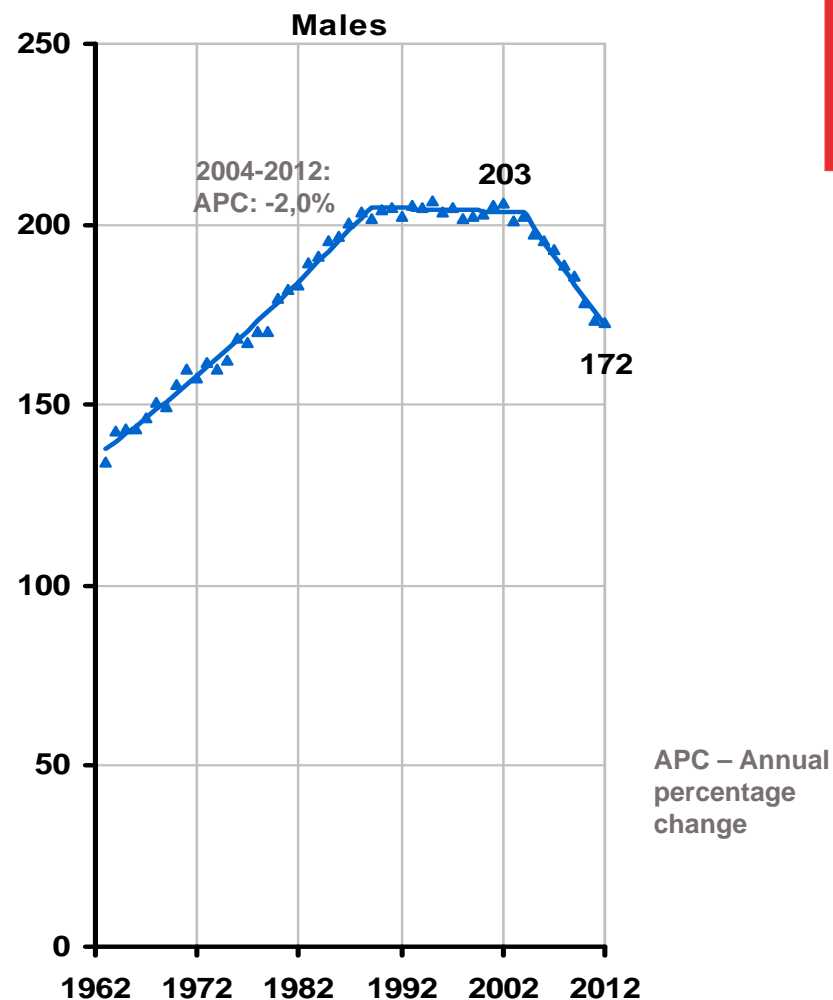


## Mortality time trends from selected cancers in Poland, 1963-2012



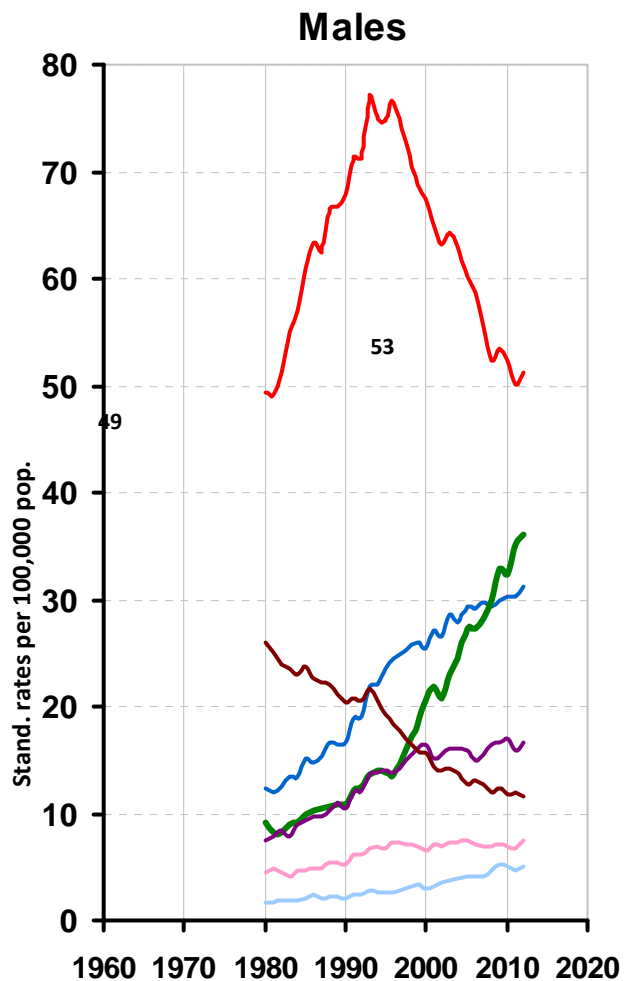
Standardised rates were calculated on the basis of a standard World population

## Total mortality indicators per 100,000 pop. Poland, 1963-2012

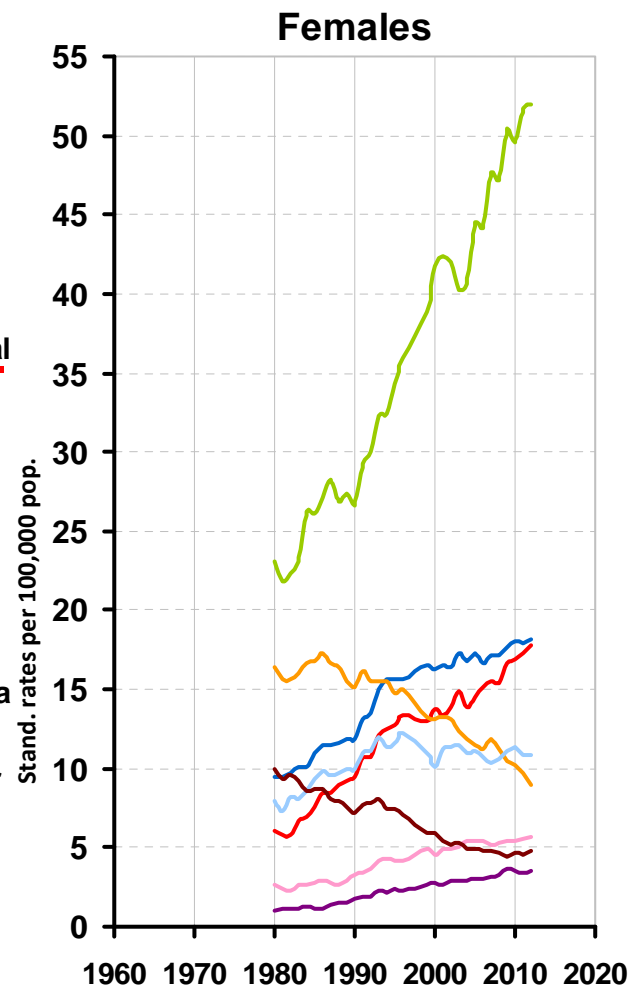


# Incidence time trends for selected cancers in Poland 1980-2012

- dramatic decline in male lung cancer
- dramatic increase in prostate cancer
- very dramatic increase in breast cancer



- lung
- colorectal
- prostate
- urinary bladder
- stomach
- lymphoma
- testicular cancer



- lung
- breast
- colorectal
- cervical cancer
- ovary
- lymphoma
- stomach
- urinary bladder

Standardised rates were calculated on the basis of a standard World population



- Do you know which countries are undergoing a thyroid cancer epidemic?

- Do you know which countries are experiencing a thyroid cancer epidemic in the last decade?
- South Korea and... Czech Republic (etc.)
- Can we control this epidemic in the EU?

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## Korea's Thyroid-Cancer "Epidemic" — Screening and Overdiagnosis

Hyeong Sik Ahn, M.D., Ph.D., Hyun Jung Kim, M.P.H., Ph.D., and H. Gilbert Welch, M.D., M.P.H.

The Republic of Korea has provided national health insurance to its 50 million citizens since the 1980s. Although health care expenditures in South Korea's single-payer system are relatively low — accounting for 7.6% of the country's gross domestic product — the system is technologically intensive; among the

countries in the Organization for Economic Cooperation and Development, it ranks second in acute care beds per million population, fifth in computed tomography (CT) scanners per million population, and fourth in magnetic resonance imaging (MRI) machines per million population. The country also has a well-devel-

oped data infrastructure for both vital statistics (Statistics Korea) and cancer incidence (Korean Central Cancer Registry).

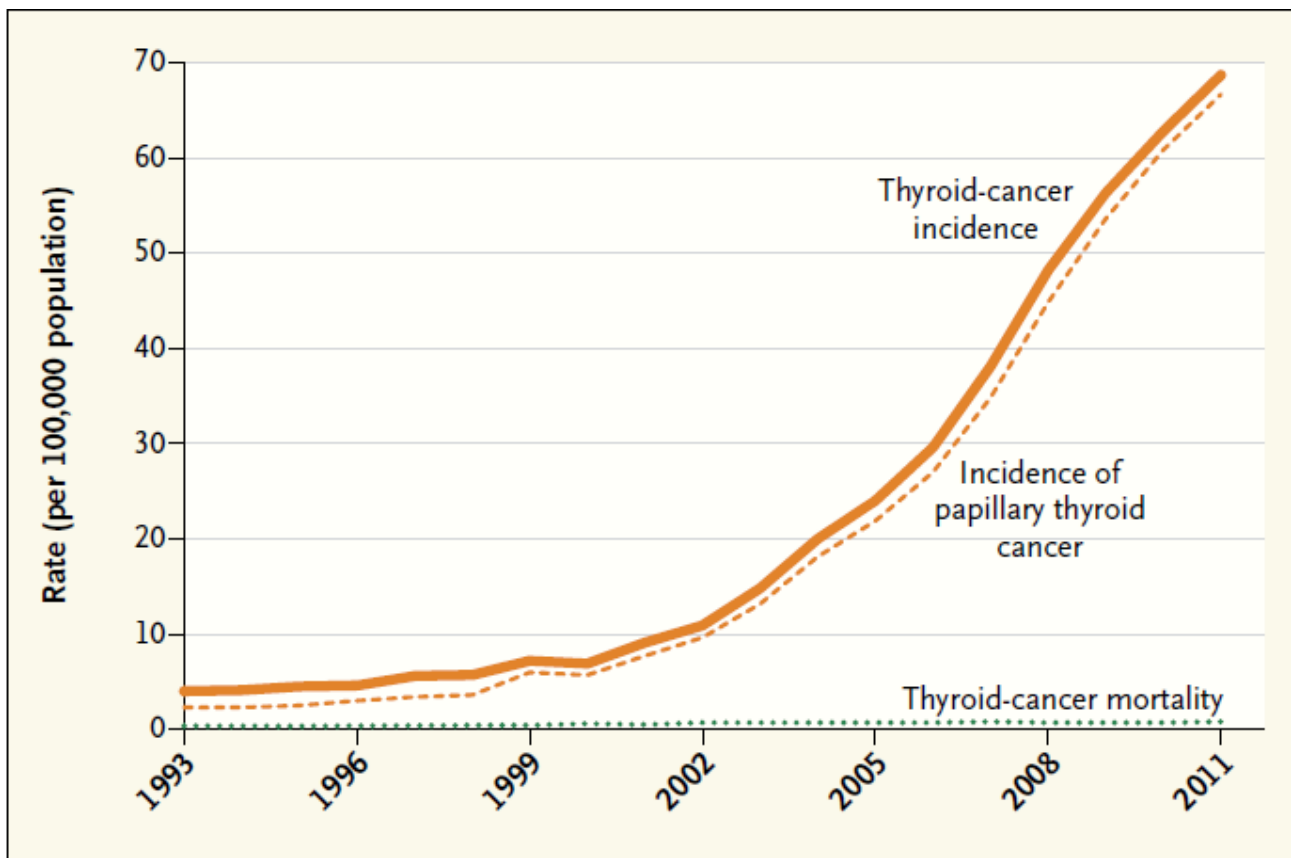
In 1999, the government initiated a national screening program for cancer and other common diseases. This program now provides screening for breast, cervical, colon, gastric, and hepatic

N ENGL J MED 371:19 NEJM.ORG NOVEMBER 6, 2014

1765

The New England Journal of Medicine





### Thyroid-Cancer Incidence and Related Mortality in South Korea, 1993–2011.

Data on incidence are from the Cancer Incidence Database, Korean Central Cancer Registry; data on mortality are from the Cause of Death Database, Statistics Korea. All data are age-adjusted to the South Korean standard population.

Source: Sik A, Jung K, Welch H. Korea's Thyroid-Cancer „Epidemic” – Screening and Overdiagnosis. N Engl J Med. 2014;371;19:1765-1767

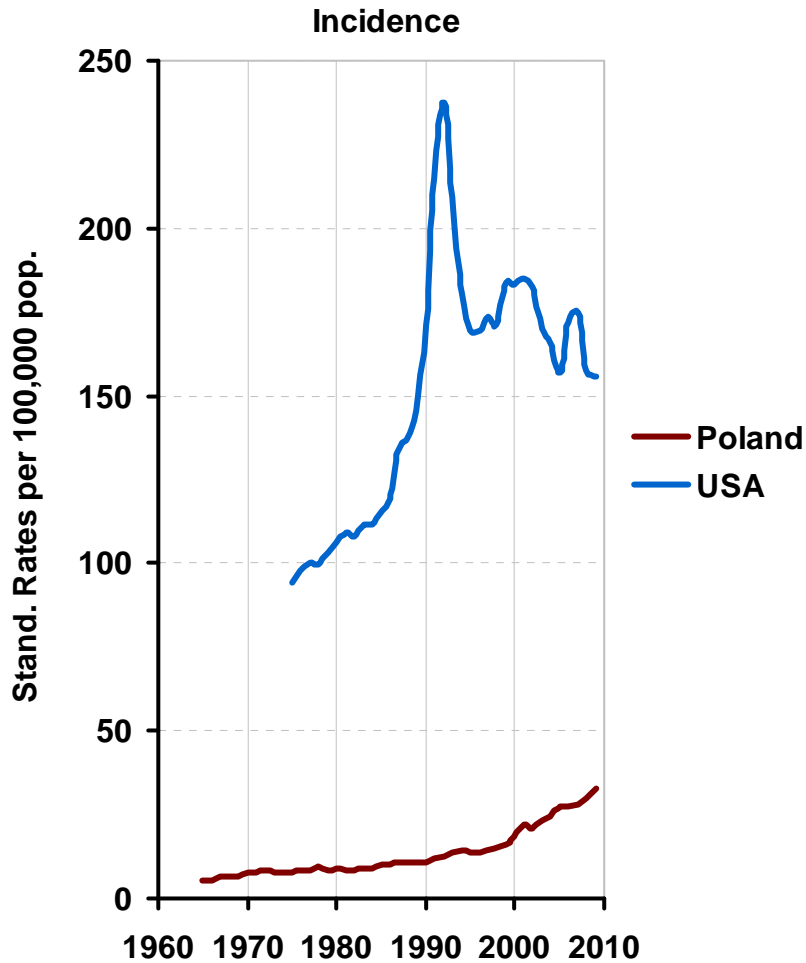


“ The South Korean experience suggests that these countries are seeing just the tip of the thyroid-cancer iceberg – and that if they want to prevent their own 'epidemic', they will need to **discourage** early thyroid-cancer detection.”

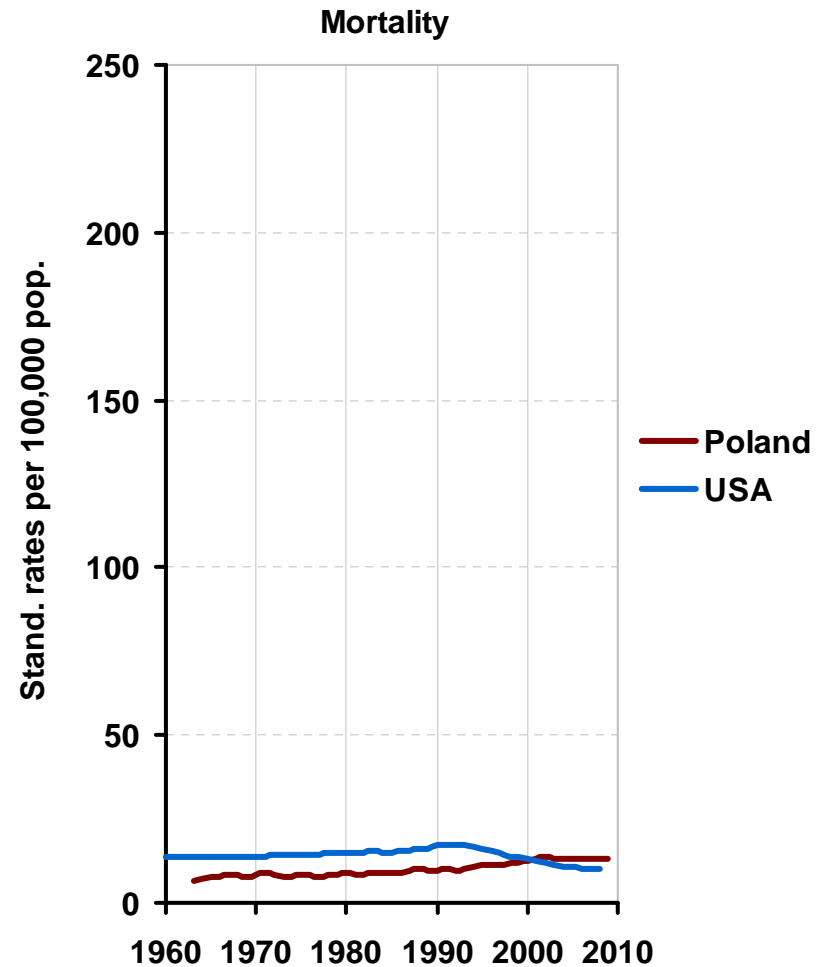
Source: Sik A, Jung K, Welch H. Korea's Thyroid-Cancer „Epidemic” – Screening and Overdiagnosis. N Engl J Med. 2014;371;19:1765-1767



# Prostate cancer, 0+



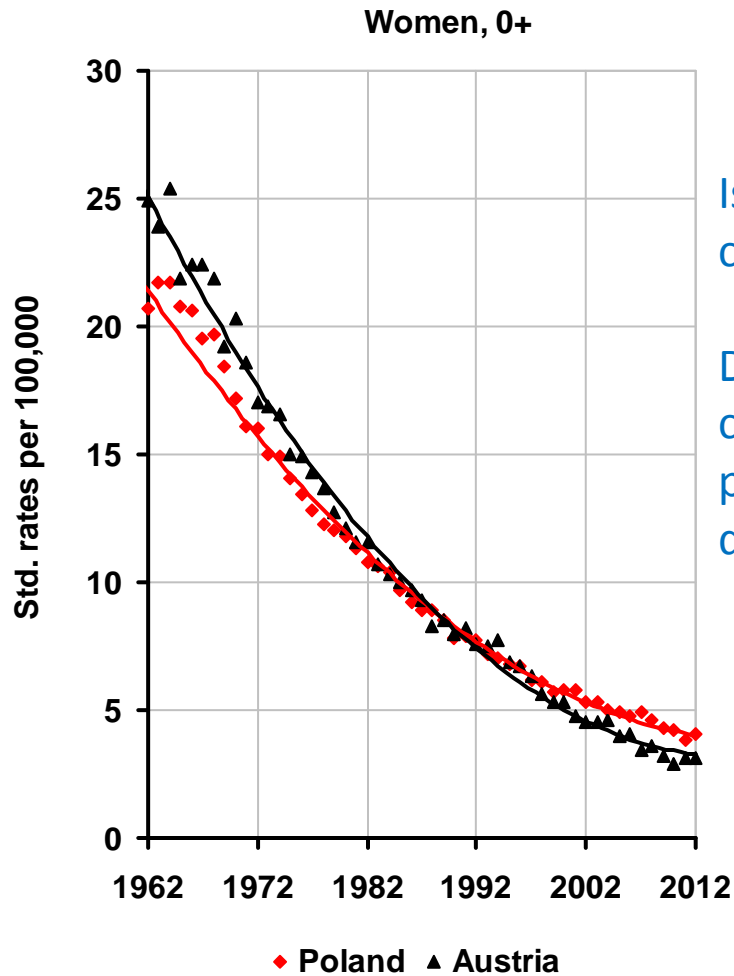
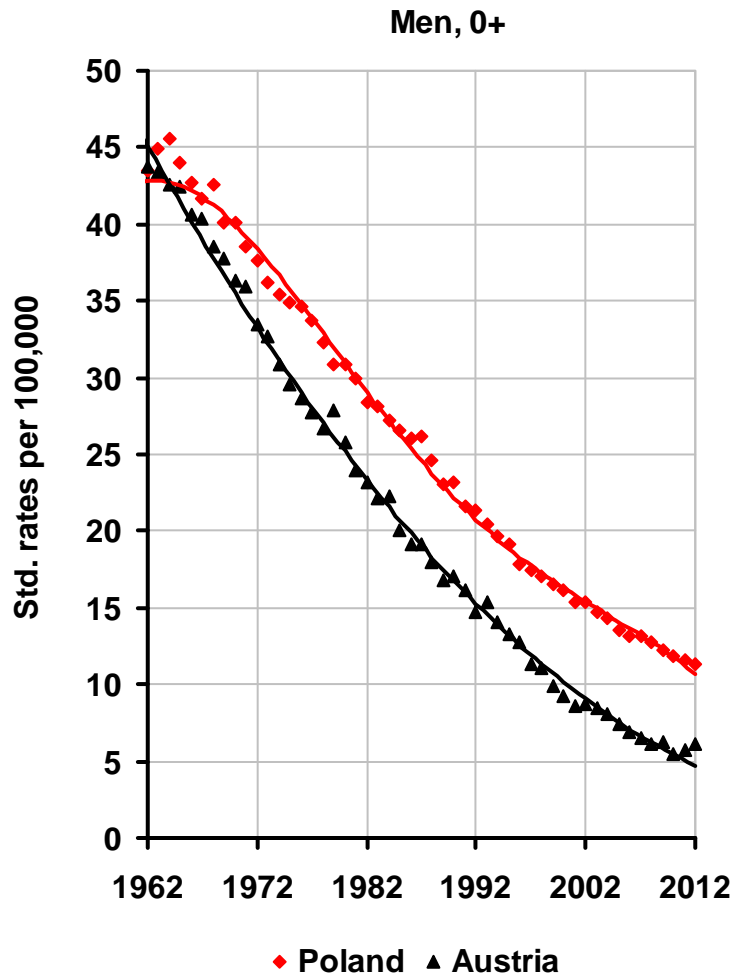
\* Standardised rates were calculated on the basis of a standard World population per 100,000 pop.



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# Stomach cancer mortality in Poland and Austria



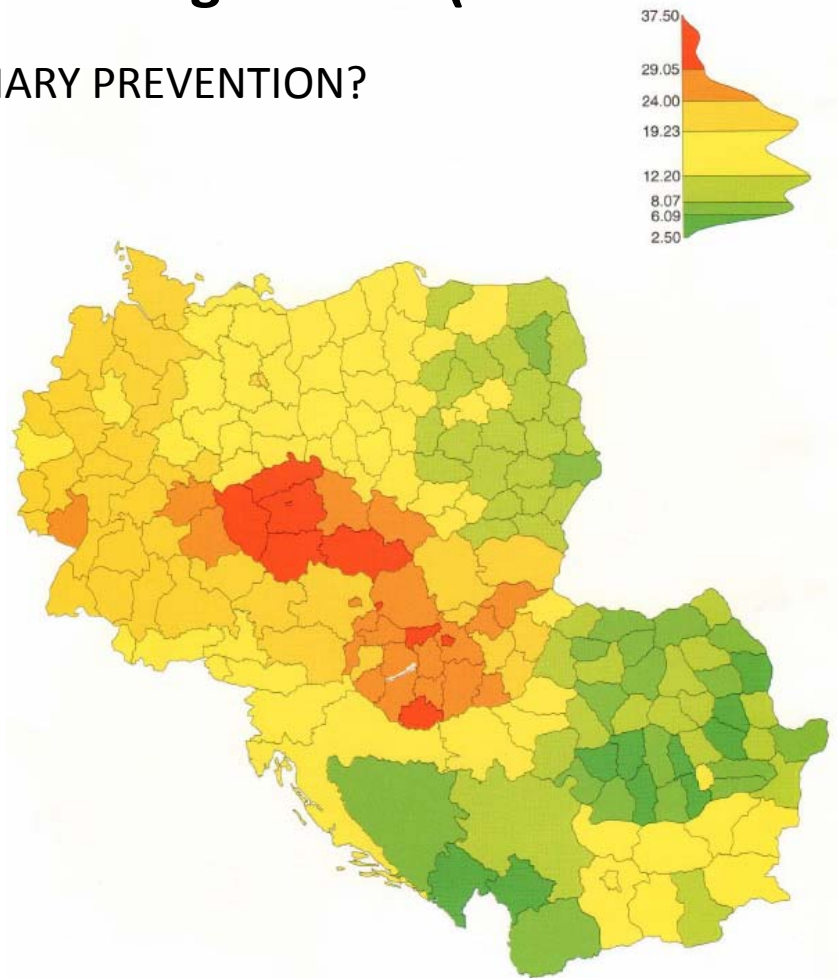
Is cancer a civilization disease?

Dramatic stomach cancer decline is probably result of development.

# CRC control – we share common problems

# Large bowel (ICD-9 153-154) – Males, 1983-1987

PRIMARY PREVENTION?



„Although central European men in six provinces (all in Czechoslovakia) show mortality rates higher than the highest in any EEC country.”

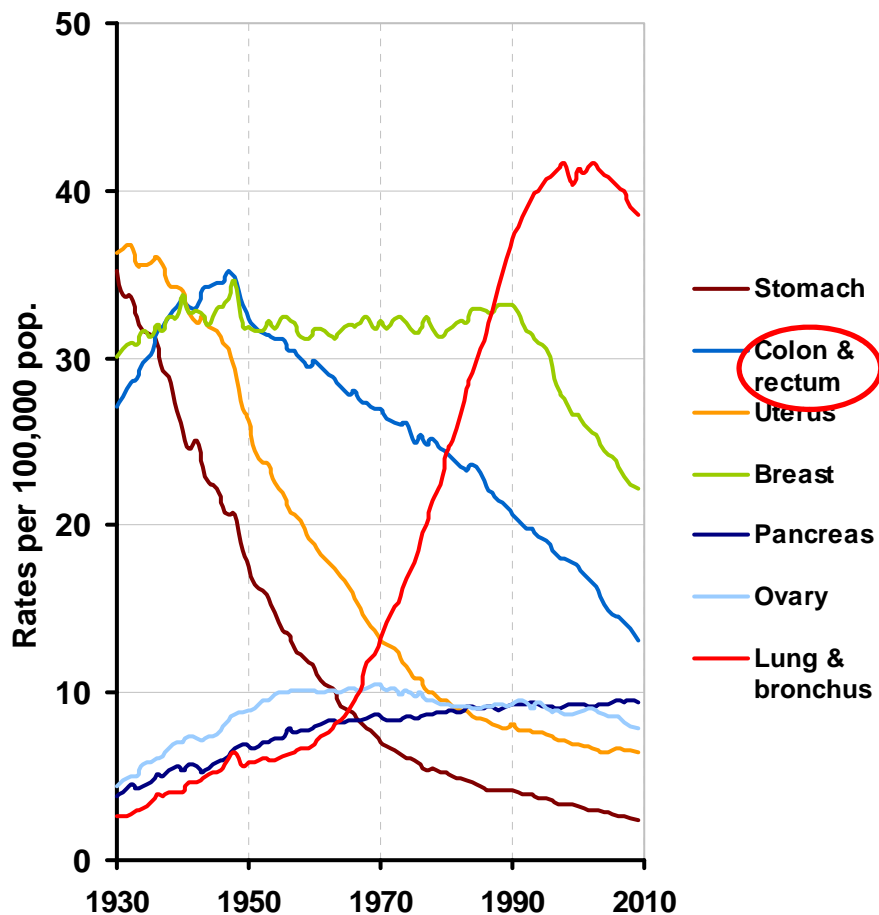
„Particularly dramatic increases in Czechoslovakia and Hungary have led to both countries along with Austria and West Germany now facing the highest rates of mortality from large bowel cancer not only in Europe but also in the world (Levi et al., 1994).”

Source: Zatoński W, Smans M, Tyczyński J, Boyle P. (eds.) (1996) Atlas of Cancer Mortality in Central Europe. IARC Scientific Publications No. 134 International Agency for Research on Cancer Lyon, France

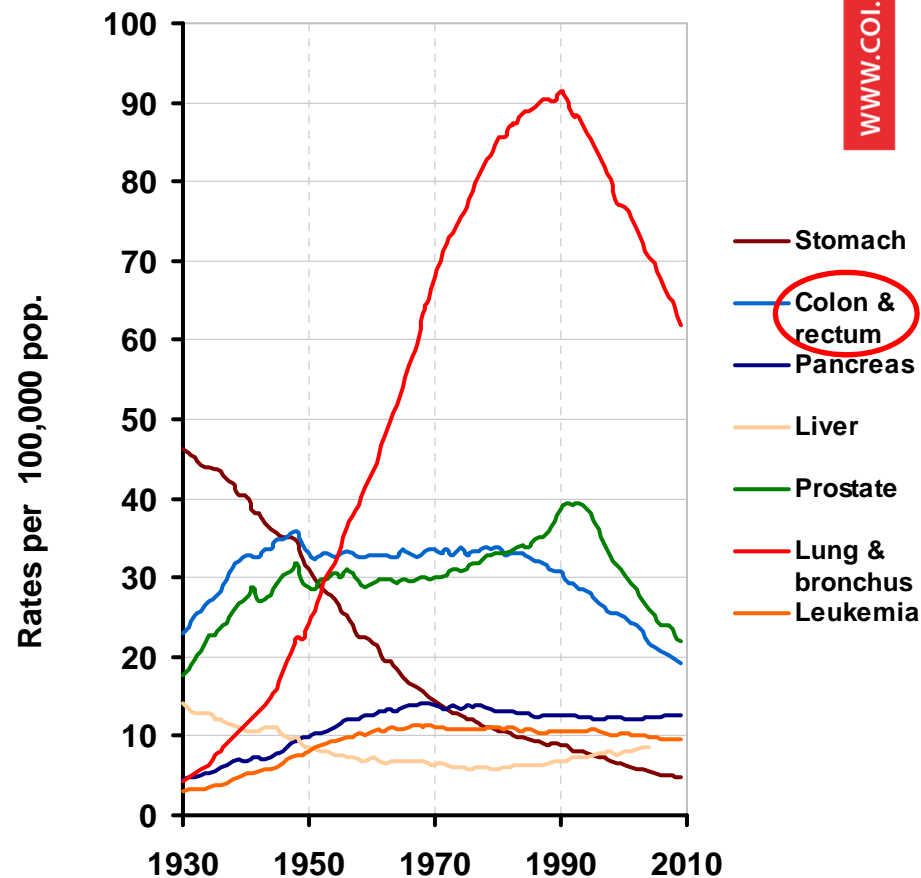
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# Cancer incidence and cancer mortality in US, 1930-2009

Women

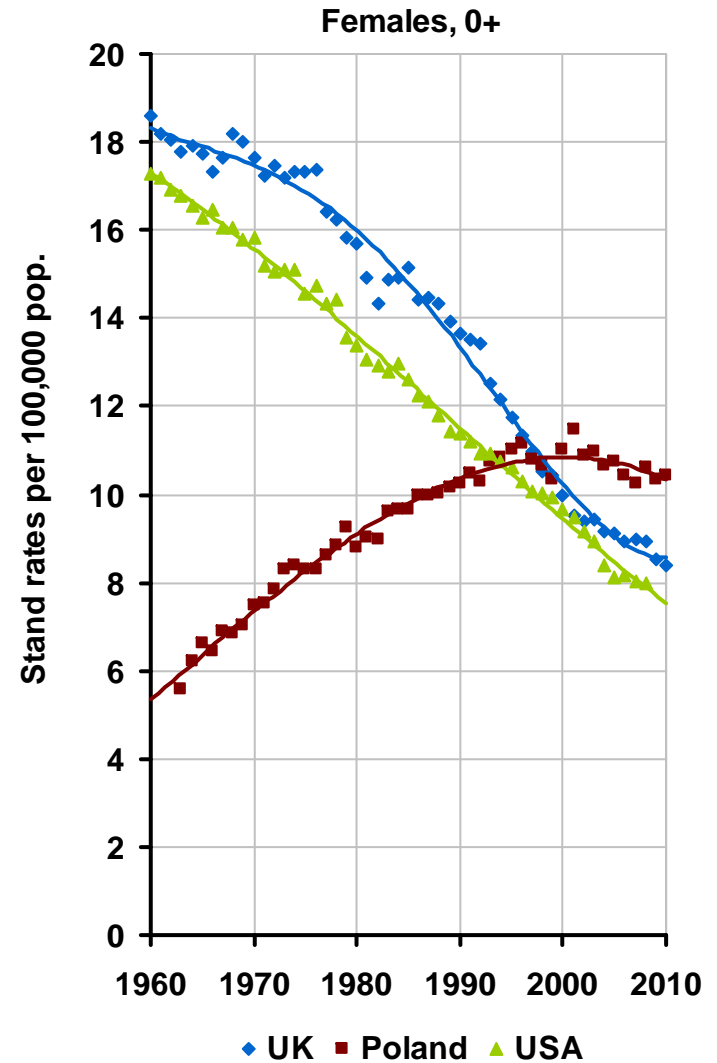
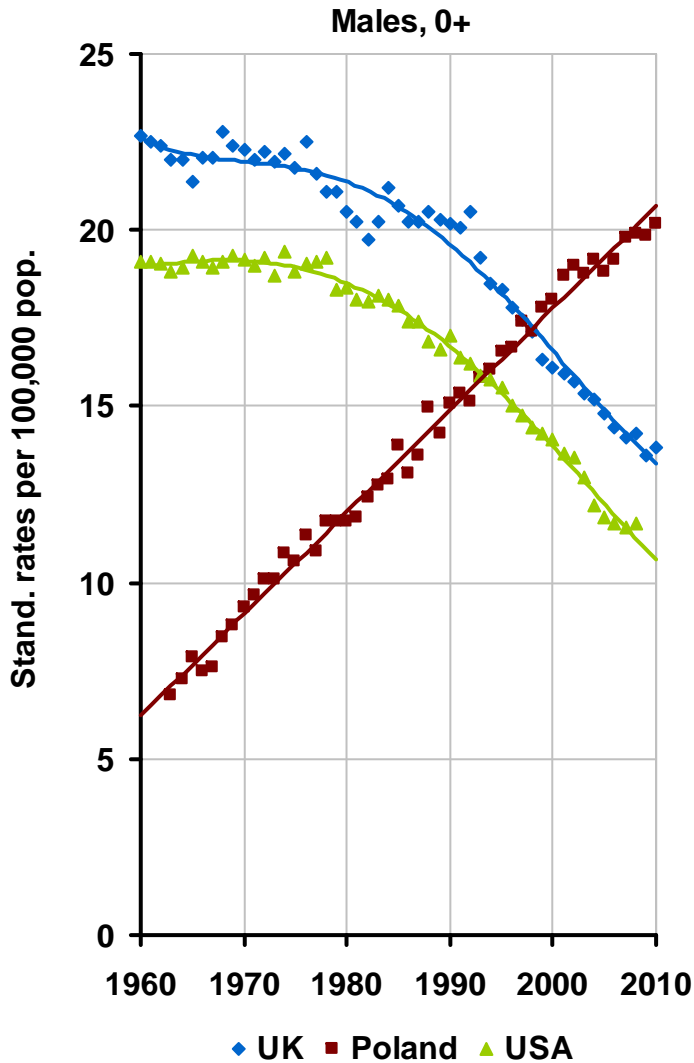


Men



Source: Surveillance, Epidemiology, and End Results Program, Delay-adjusted Incidence database: SEER Incidence Delay-adjusted Rates, SEER CANCER STATISTICS REVIEW 1975-2009.

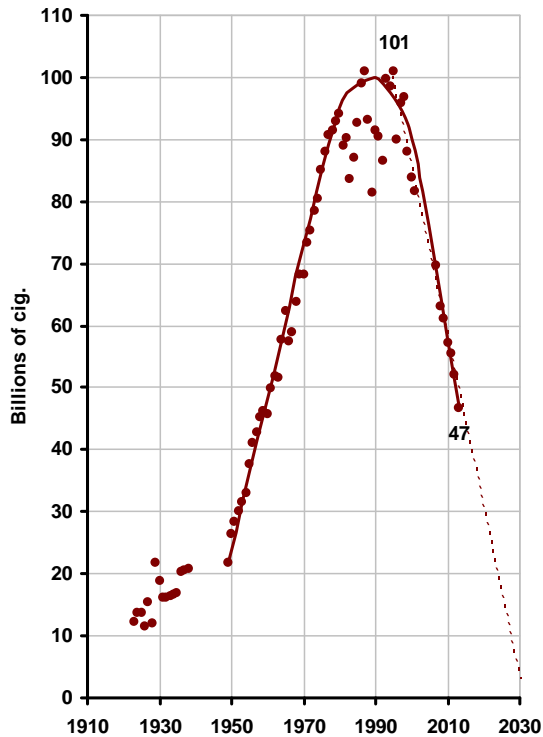
# Colorectal cancer mortality



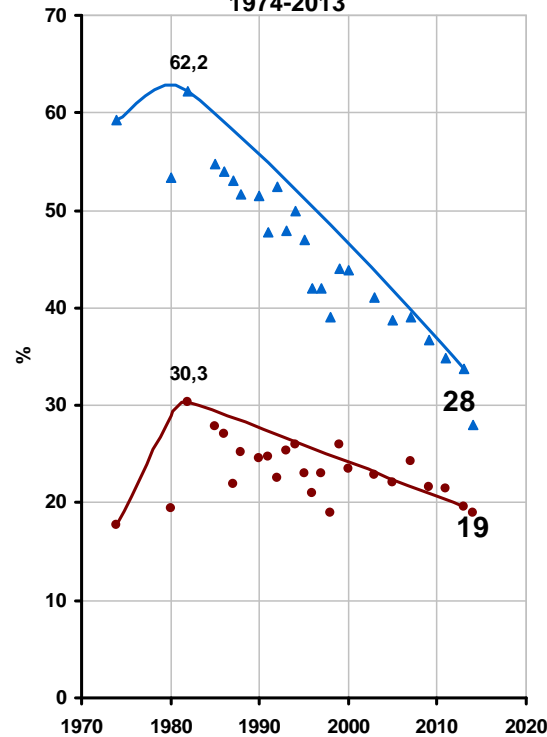
# Czech Republic – in restaurants and hotels we are still exposed to tobacco smoke

# Cigarette consumption and smoking in Poland

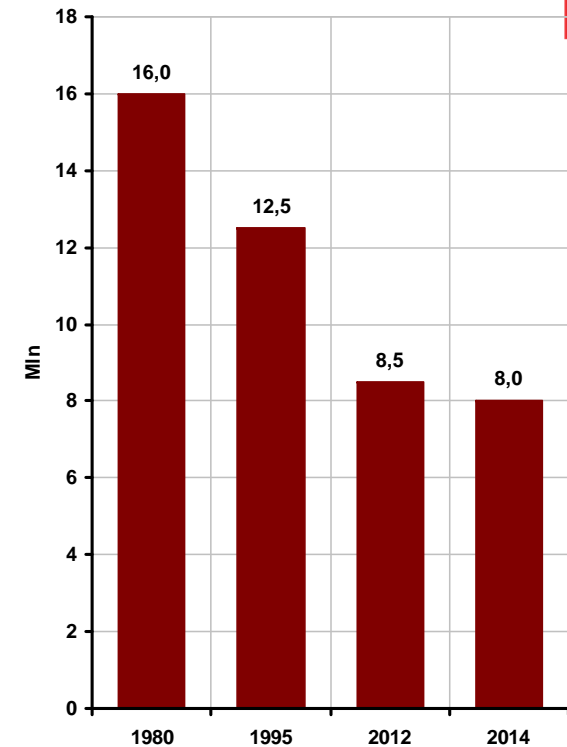
Tobacco sales in Poland, 1923-2013



Daily smoking by gender, 15+, Poland 1974-2013

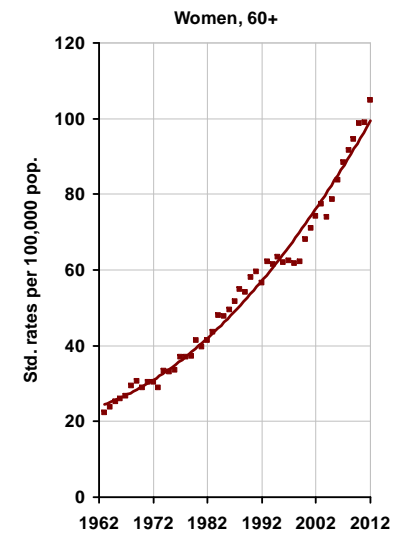
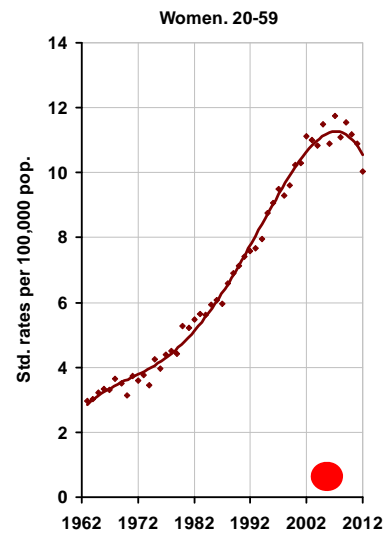
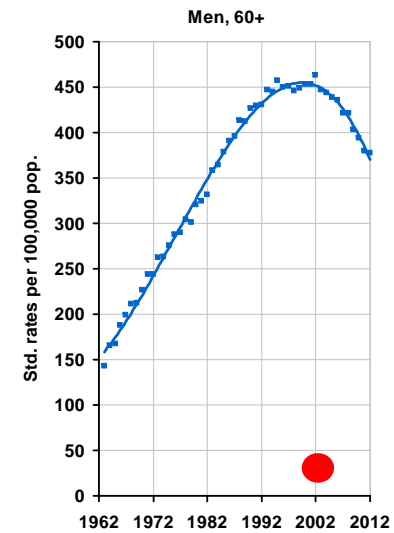
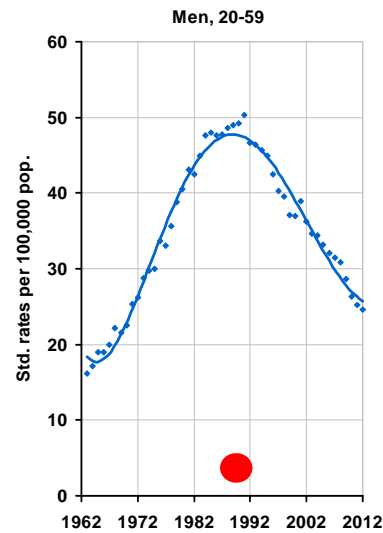


The number of smokers



Source: Zatoński W, Przewoźniak K, Sulkowska U, West R, Wojtyła A. Tobacco smoking in countries of the European Union. Annals of Agricultural and Environmental Medicine. 2012;19;2:181-192; Czapiński J, Panek T. (red.). Diagnoza Społeczna 2013.

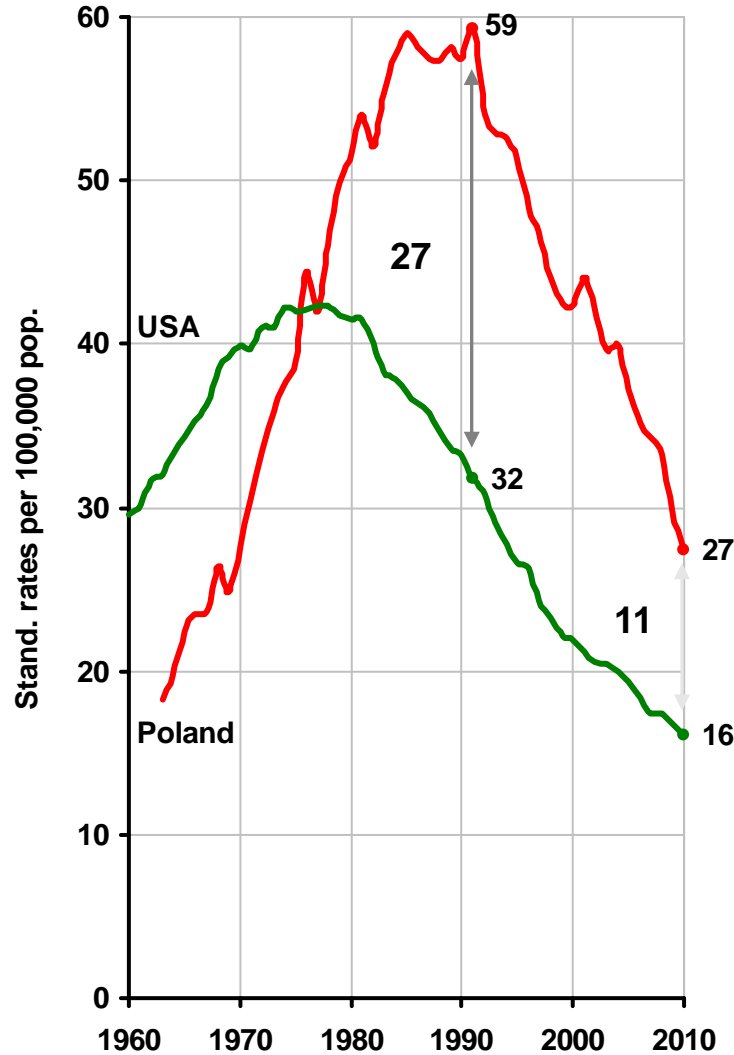
# Lung cancer mortality in Poland



Source: Zatoński W, Sulkowska U, Przewoźniak K, Zatoński M. Epidemiologia Nowotworów złośliwych w Polsce. W: Zachorowalność i umieralność na nowotwory a sytuacja demograficzna Polski. Rządowa Rada Ludnościowa. Warszawa 2014:30-49



# Males lung cancer mortality Poland vs. USA, 35-54, 1960-2010



# Lack of consistent alcohol policy in Europe

Decrease in excise taxation of hard spirits

1999 – vodka prices decreased by 44% in Lithuania

2002 – vodka prices decreased by 30% in Poland

2004 – vodka prices decreased by 44% in Finland

2 Biondi DC, Miller MG, Bergeman RM, et al. The association between hypoglycaemia, severe hypoglycaemia and mortality in type 2 diabetes: retrospective epidemiological analysis of the ACCORD study. *BMJ* 2010; **340**: b4993.

### Alcohol taxation and premature mortality in Europe

Europe has the highest premature mortality attributable to alcohol in the world.<sup>1</sup> Despite WHO's emphasis on the importance to restrict alcohol consumption with fiscal measures, the Lithuanian (in 1999), Polish (in 2002), and Finnish (in 2004) Governments all lowered excise taxation of alcoholic spirits by 44%, 30%, and 44%, respectively. These decisions led to instant and striking effects on health, which have been described elsewhere for Lithuania<sup>2</sup> and Finland.<sup>3</sup>

Decreases in alcohol prices in Poland provided a so-called one-factor natural experiment<sup>4</sup>—allowing the effects of this factor to be observed—whereby no other reforms in alcohol distribution, availability, or regulation were introduced. Additionally, no changes were noted in other factors that could affect mortality and morbidity in Poland, and the gross-domestic product of this country was steadily increasing. In Poland, reductions to vodka prices were followed by an abrupt increase in recorded alcohol sales from 7 L per capita in 2002 to almost 10 L per capita in 2008,<sup>4</sup> and a yearly increase in mortality rates attributable to alcohol of 6–64 deaths per 100 000 in men aged 45–64 years (unpublished). Before alcohol prices were lowered, Poland was one of the countries in Europe with the most dynamic health improvements showing a large and steady decrease in mortality (figure). After the change to alcohol prices, Poland and Finland's improvements in mortality

slowed and Lithuania's mortality in men worsened. In 2008, alcohol prices were increased again in Poland and the rate of decreasing premature mortality returned to the same levels before 2002 (unpublished).

The Russian Government announced that it would reduce the price of vodka by 16% in February, 2015. Similar to Poland, this decision follows a period of rapid improvements to health. After 50 years of stagnation, the health indicators of the Russian population, especially of young and middle-aged men, have been improving since 2005.<sup>5</sup> As with Lithuania, Poland, and Finland, the decision to lower alcohol prices will probably contribute to halting this health transformation in Russia, especially because vodka consumption continues to be a key contributor to its high rates of premature mortality.<sup>6</sup>

Lithuania, Poland, and Finland increased alcohol taxes a few years after reducing them. We find it difficult to understand why Russia would be willing to repeat the same mistakes as its neighbouring countries rather than learning from them.

We declare no competing interests.

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- 1 Boyle P, Borzosa F, Lewdenhuk J, et al. Alcohol, violence, justice and public health. Oxford: Oxford University Press, 2013.
- 2 Gubarasius V, Prochomskas R, Viegys A. Association between mortality and alcohol consumption in Lithuanian population. *Medicina (Kaunas)* 2009; **45**: 1000–12 (in Lithuanian).
- 3 Makiela P, Oksenberg L. Weakening of one more alcohol control pillar: a review of the effects of the alcohol tax cuts in Finland in 2004. *Addiction* 2009; **104**: 554–63.
- 4 Central Statistical Office. Statistical yearbook of the Republic of Poland 2010. Warsaw: Statistical Publishing Establishment, 2010.

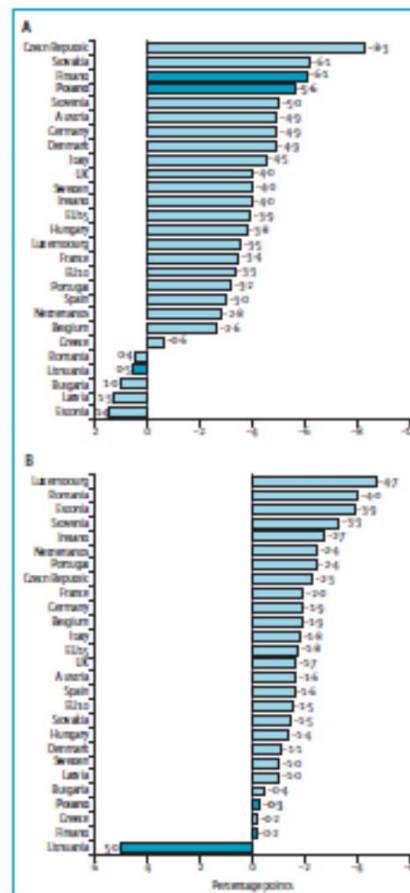
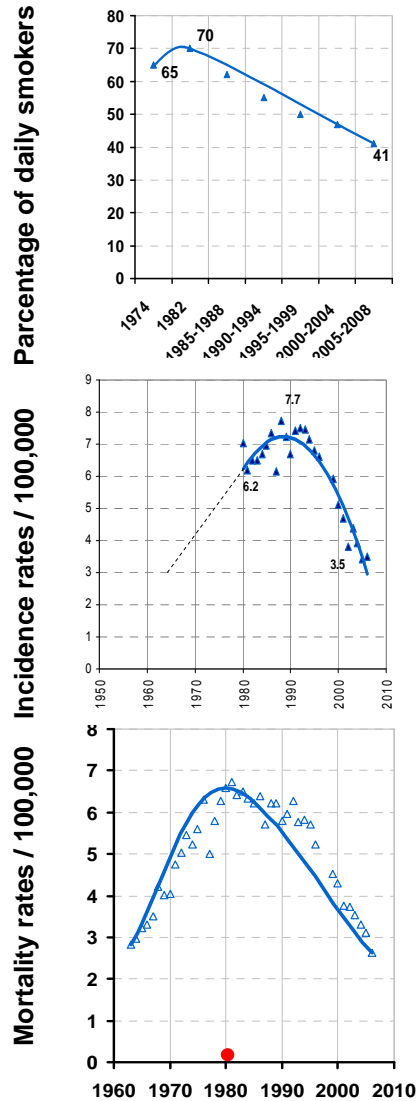


Figure. Changes in probability of mortality in men aged 20–64 years in Europe. Probability of mortality for men in 1990 versus 2000 (A) and 2002 versus 2007 (B). Probability of a man aged 20 years dying before 65 years is expressed as a percentage, and change in probability between the two year dates is shown in percentage points. Data are from the WHO Mortality Database ([http://www.who.int/healthinfo/mortality\\_data/en/](http://www.who.int/healthinfo/mortality_data/en/)).

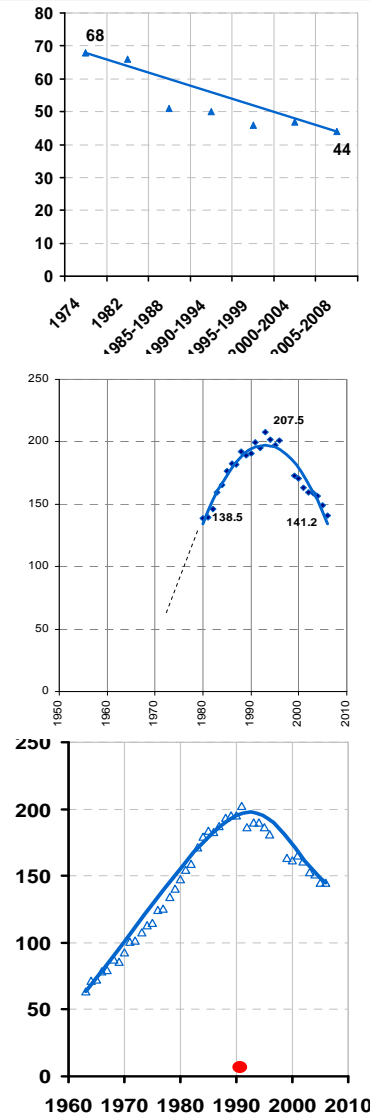
- 5 Popov IA. The results of the modern demographic policy in Russia. *Int J Rep Dev* 2014; **1**: 24–38.
- 6 Zarate D, Livingston S, Boroda A, et al. Alcohol and mortality in Russia: prospective observational study of 75,000 adults. *Lancet* 2014; **383**: 1465–75.

# Smoking prevalence vs. lung cancer mortality and incidence, Poland, men

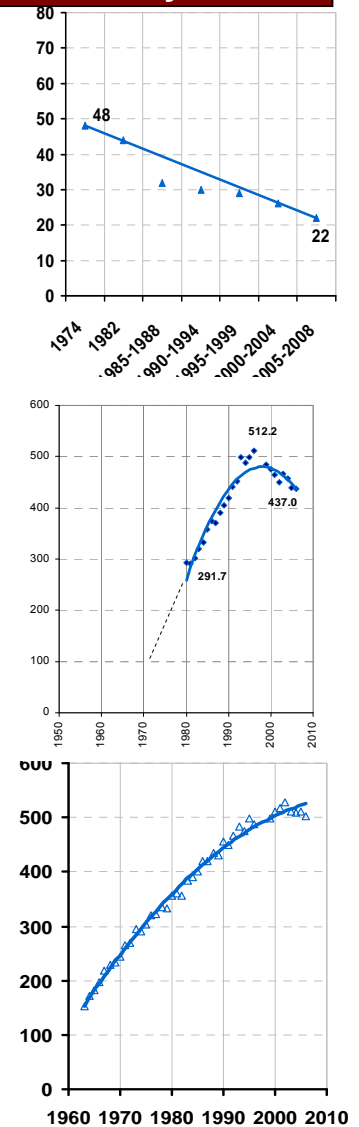
## 20-44 years



## 45-64 years



## 65+ years



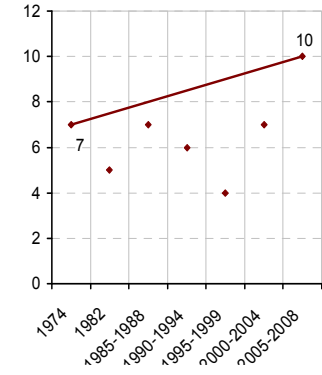
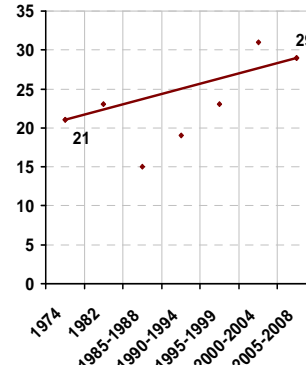
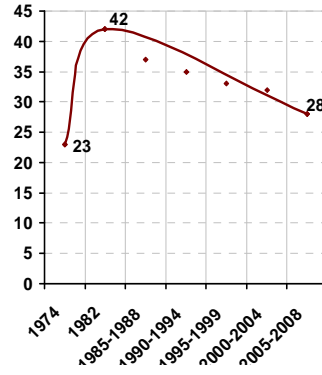
# Smoking prevalence vs. lung cancer mortality and incidence, Poland, women

20-44 lata

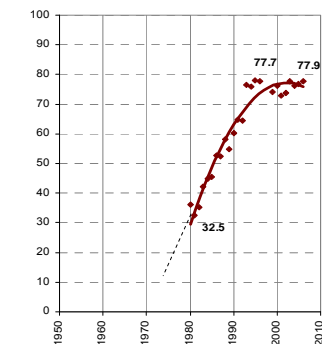
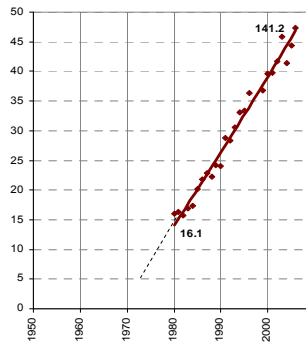
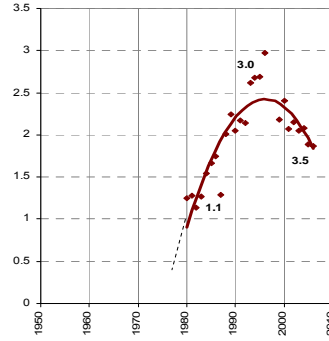
45-64 lata

65+ lat

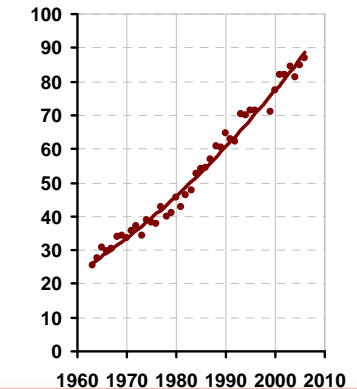
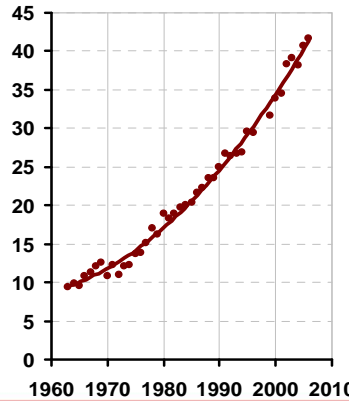
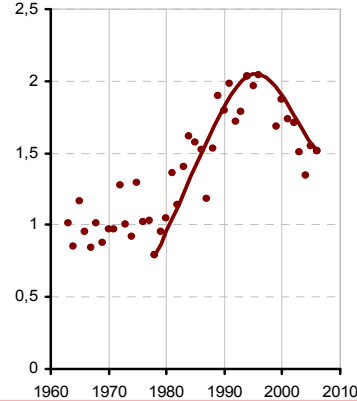
Percentage of daily smokers



Incidence rates / 100,000

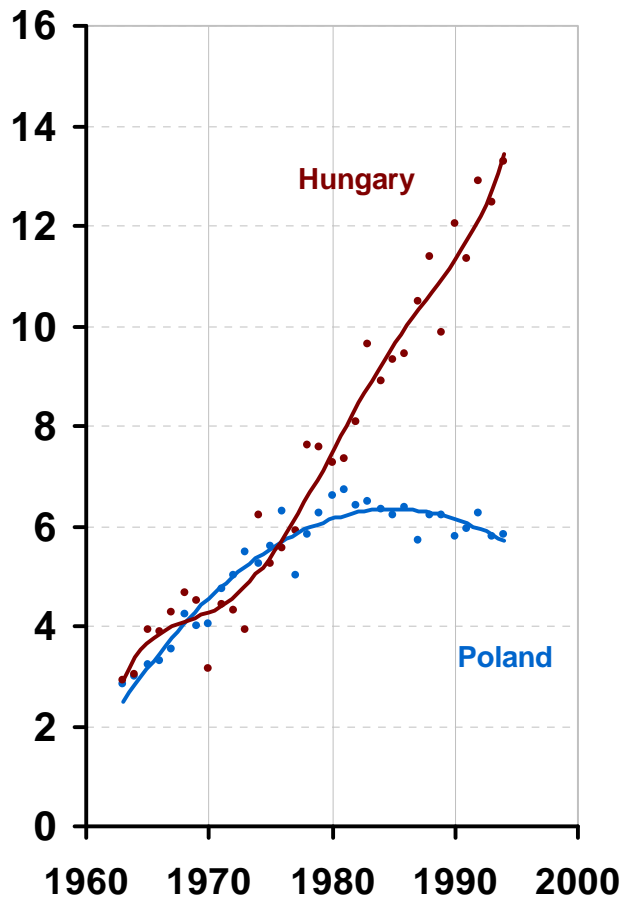


Mortality rates / 100,000



# Mortality time trends for lung cancer

Males, Poland vs Hungary, 20-44



Females, Poland vs Hungary, 20-44

