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Für Mensch und Umwelt

Environmental health risk assessment in the EU: State of the art and future directions

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Federal Environment Agency
(Umweltbundesamt)

Dept. Environmental Hygiene

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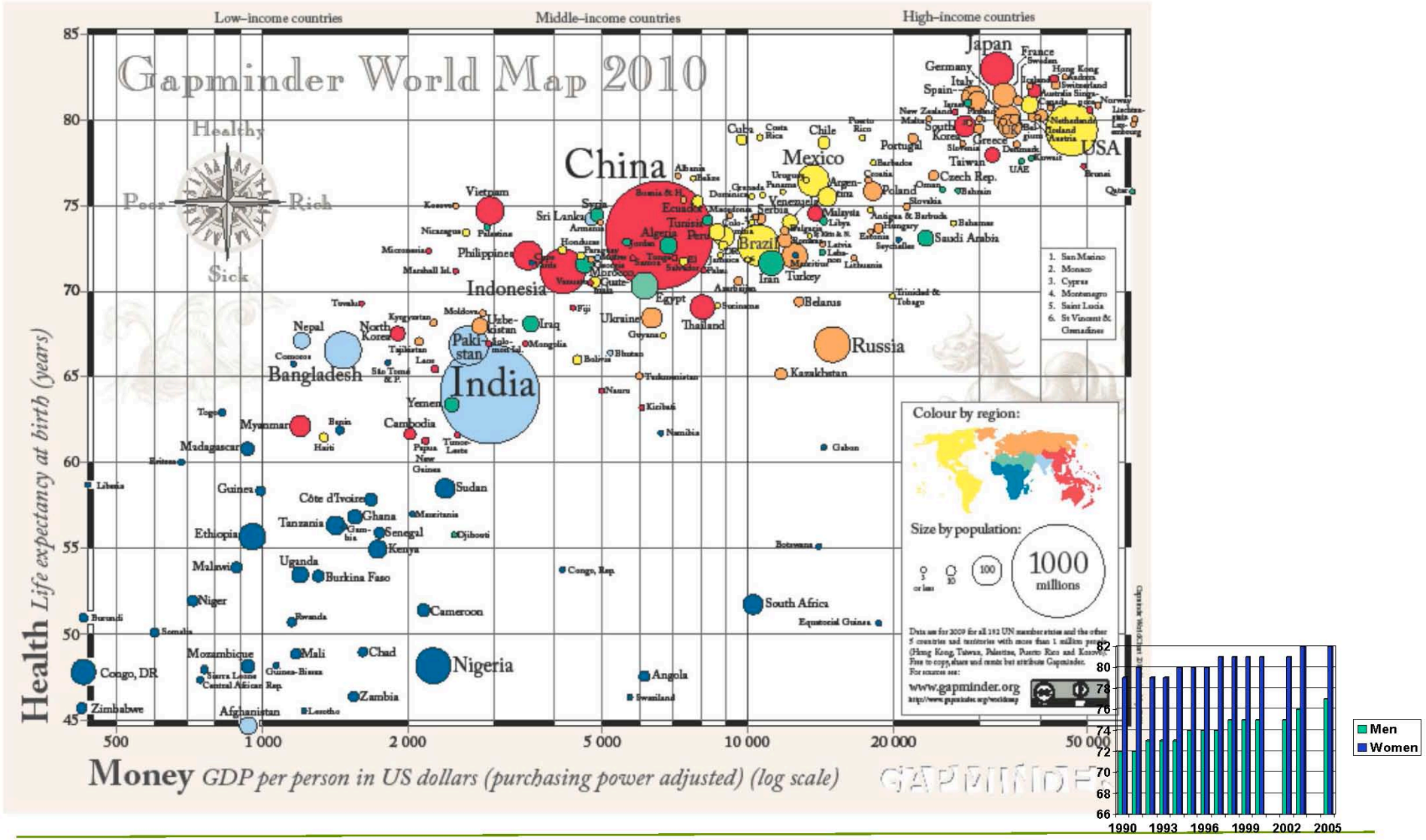
Gross Domestic Product and life expectancy at birth



But…

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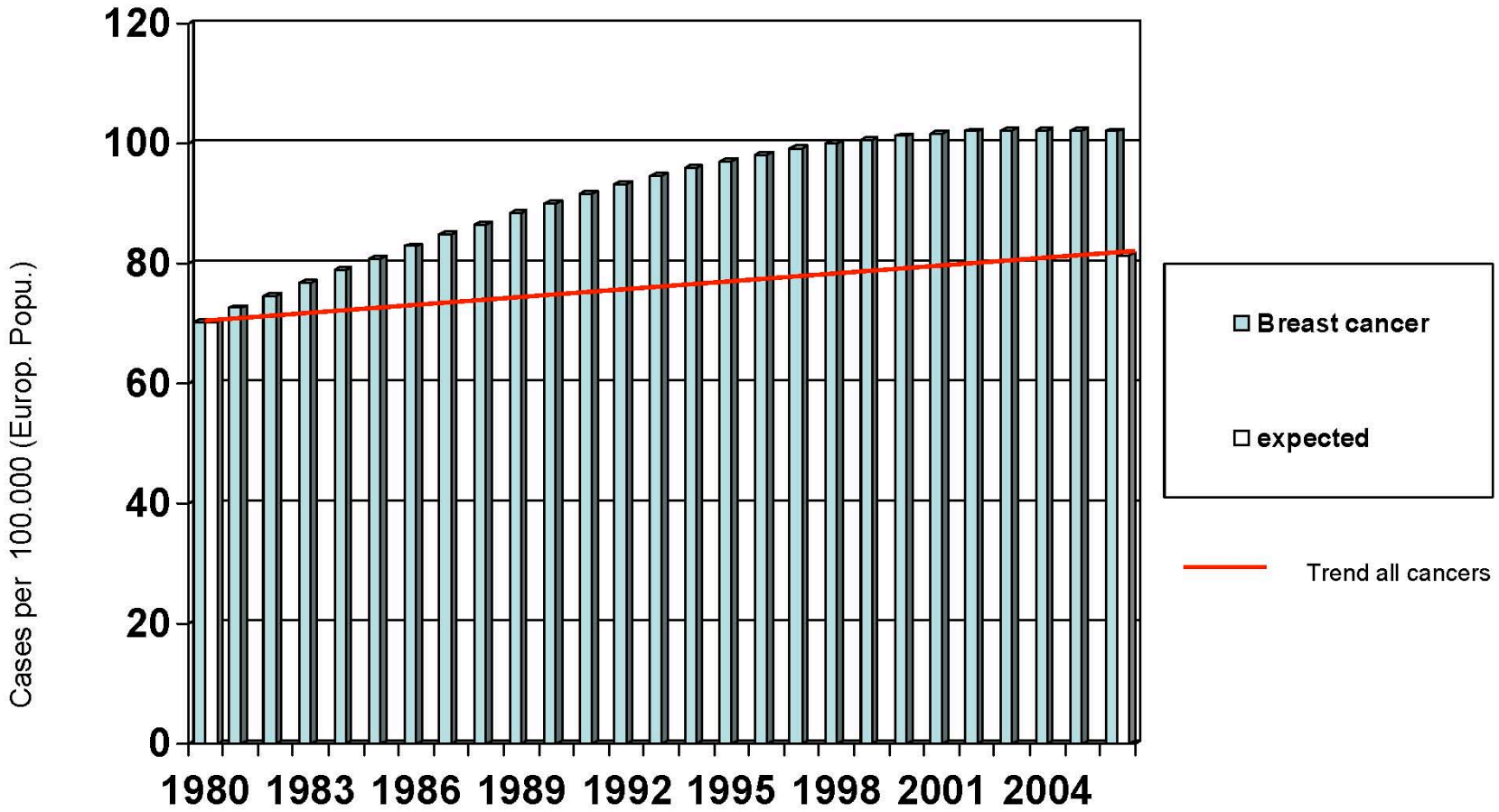
Trend: Breast cancer in Germany 1980-2006



Quelle: Dachdokumentation Krebs, RKI 2010

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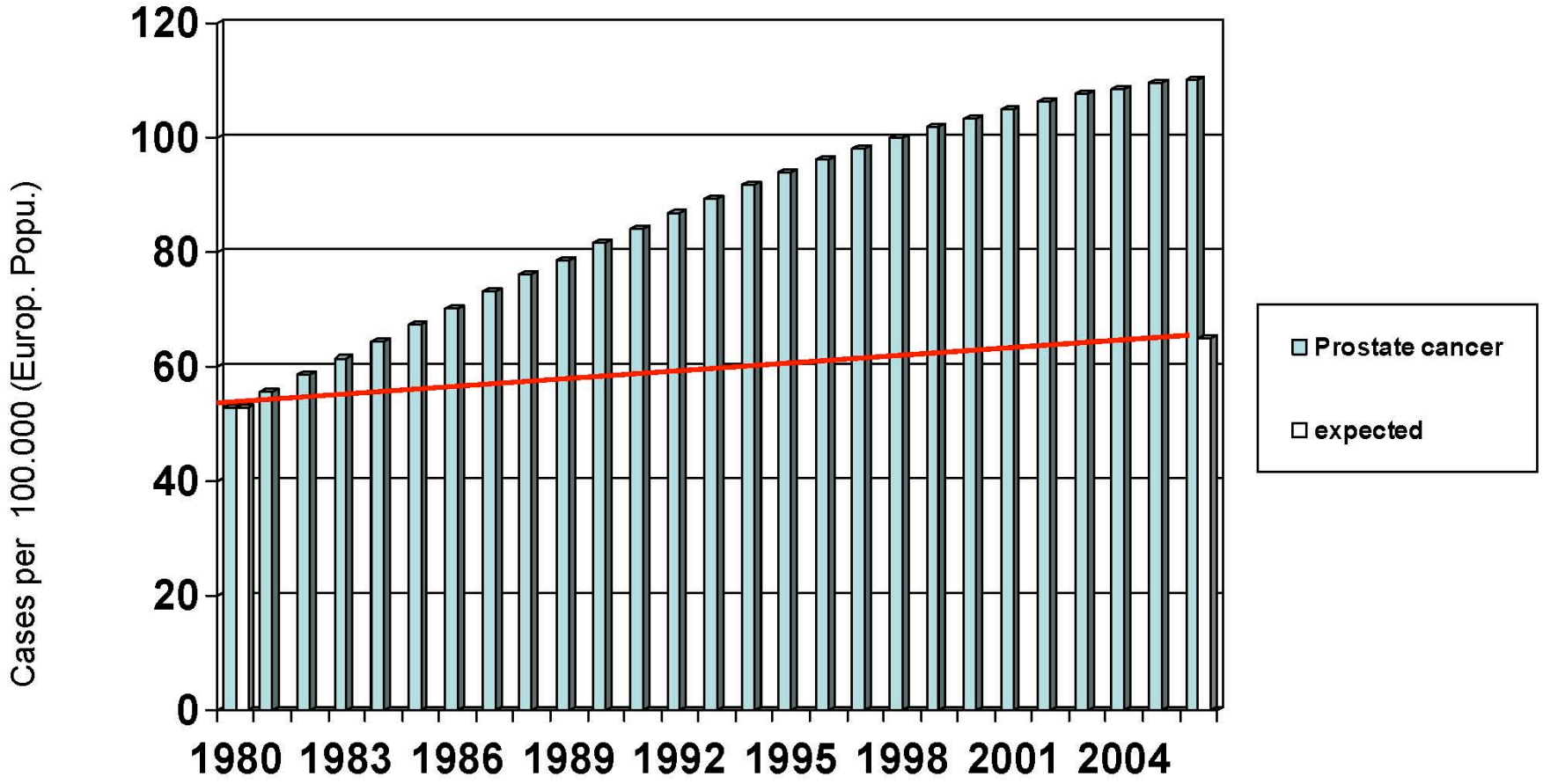
Trend: prostate cancer in Germany 1980-2006



Source: Dachdokumentation Krebs, RKI 2010

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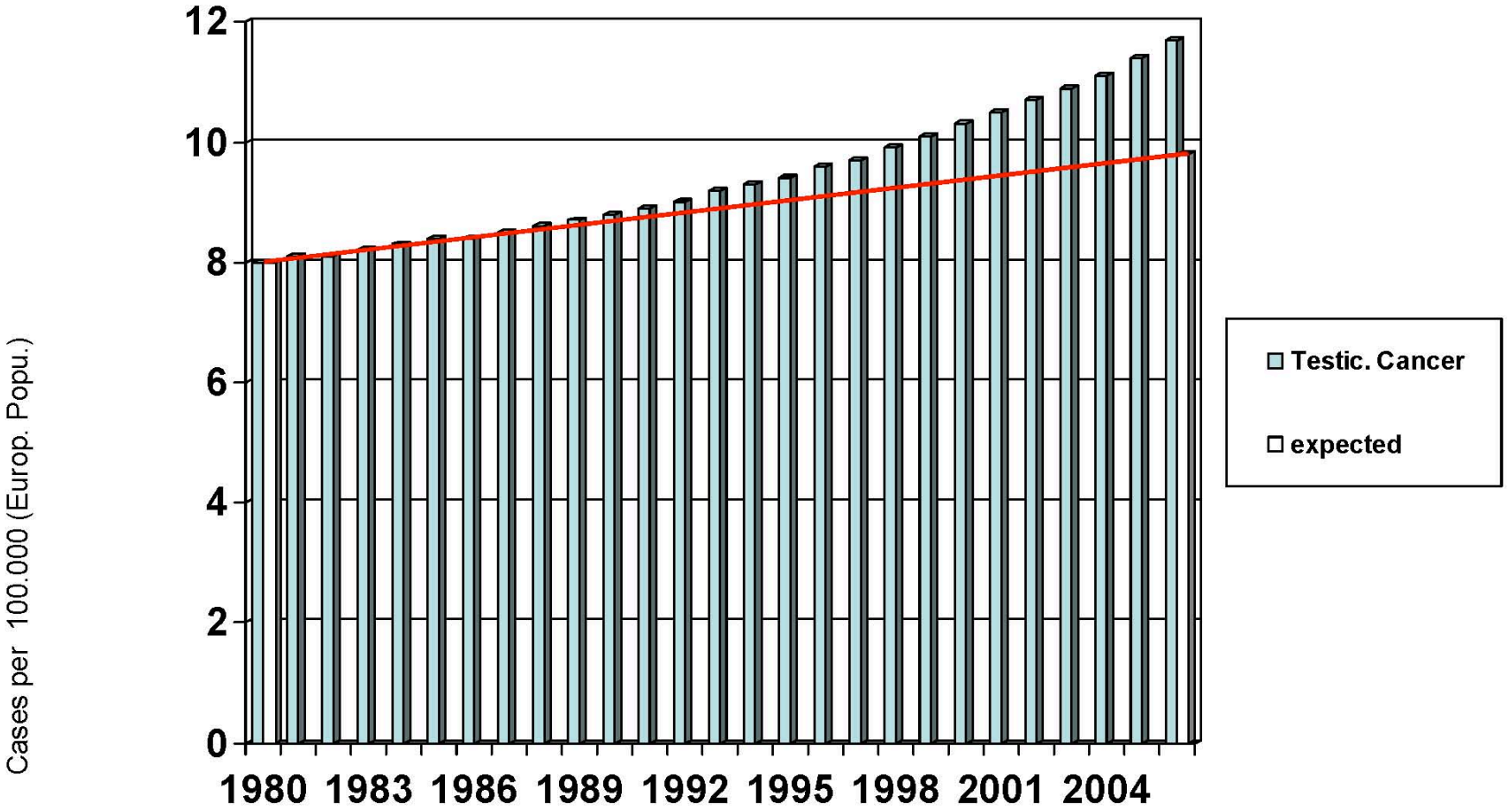
Trend: testicular cancer in Germany 1980-2006



Source: Dachdokumentation Krebs, RKI 2010

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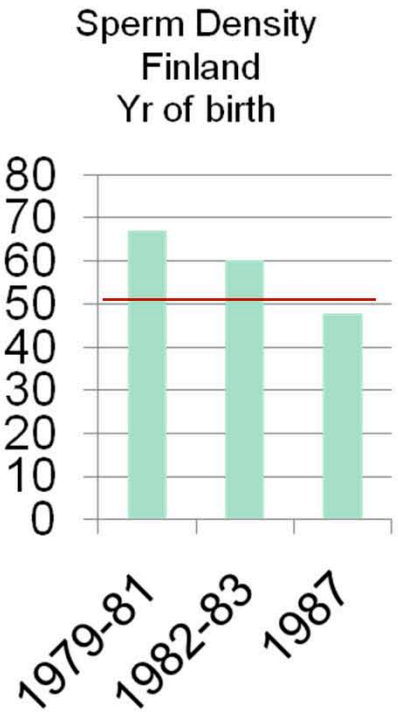
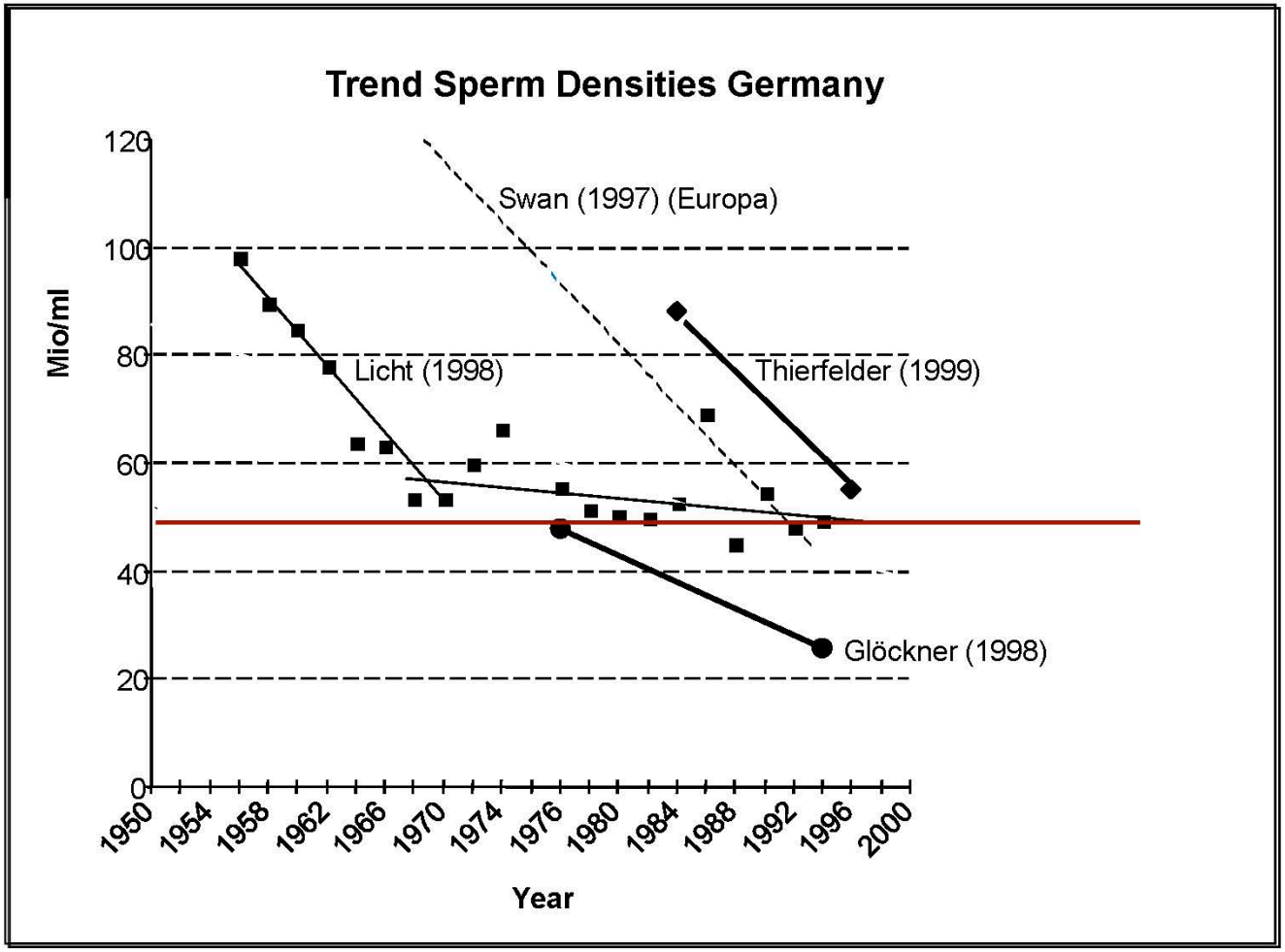
Trend: Sperm Density in Germany





Source: N. Jørgensen et al.
Int. J. Androl. 2011

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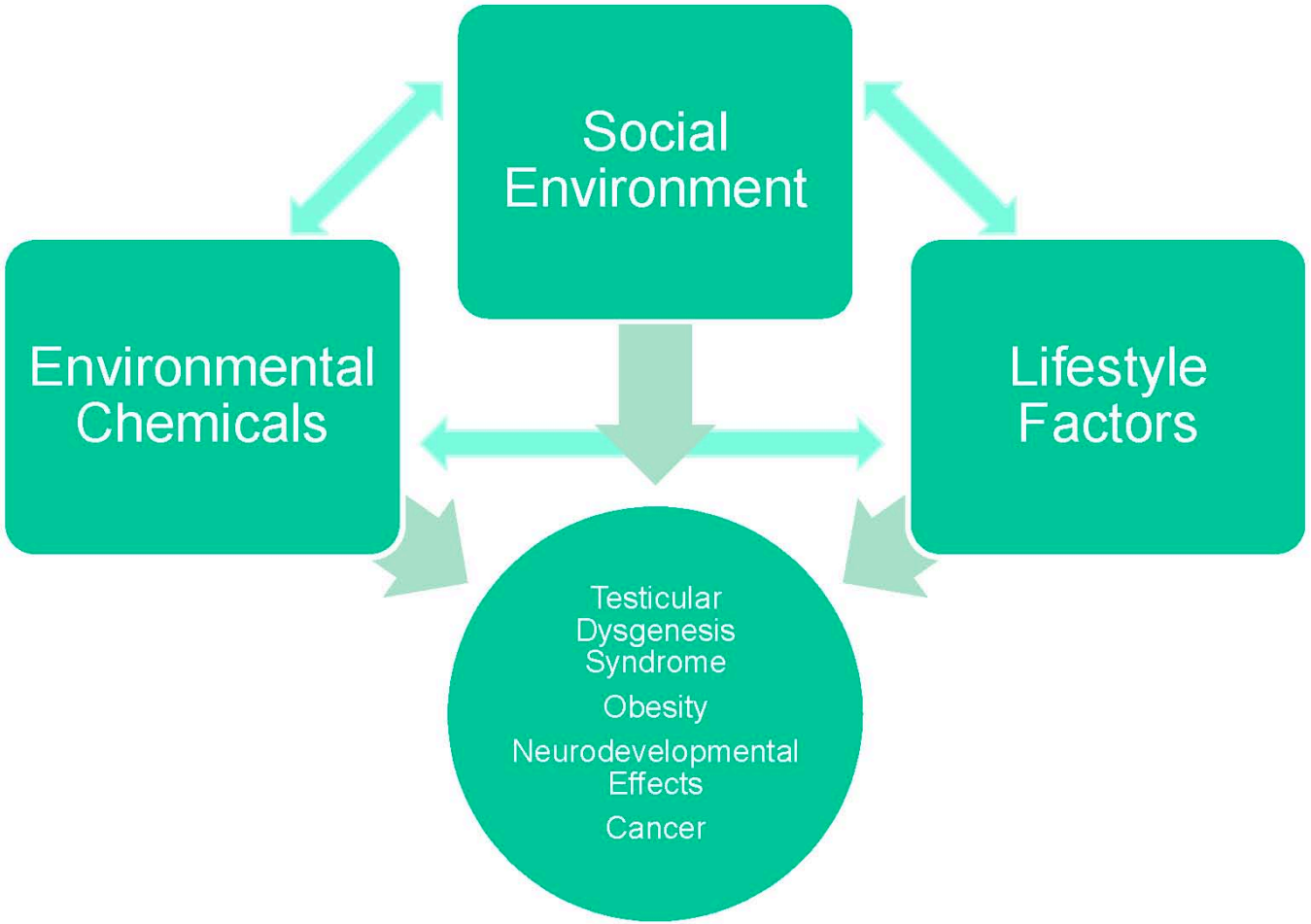
Real life is multifactorial



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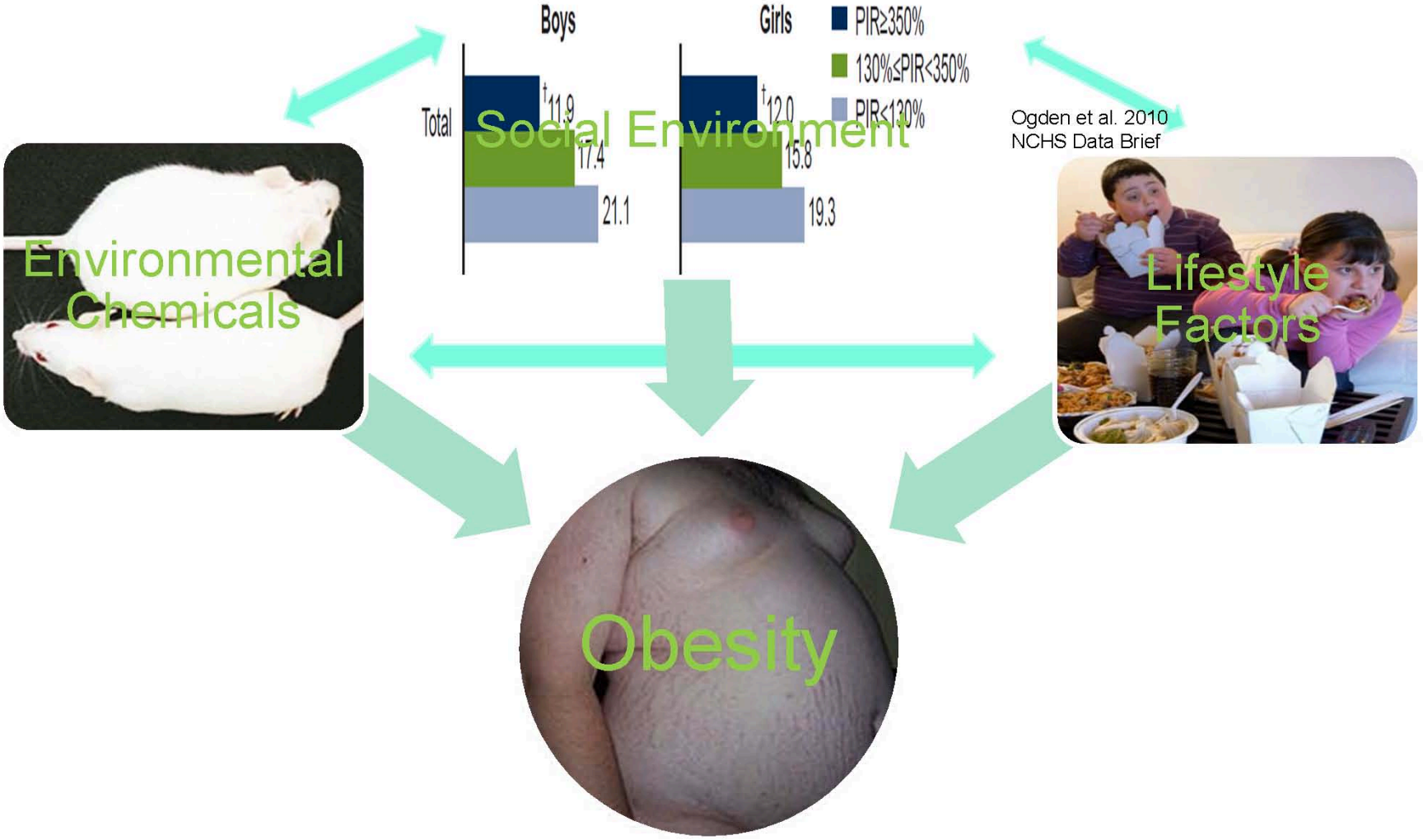
Real life is multifactorial



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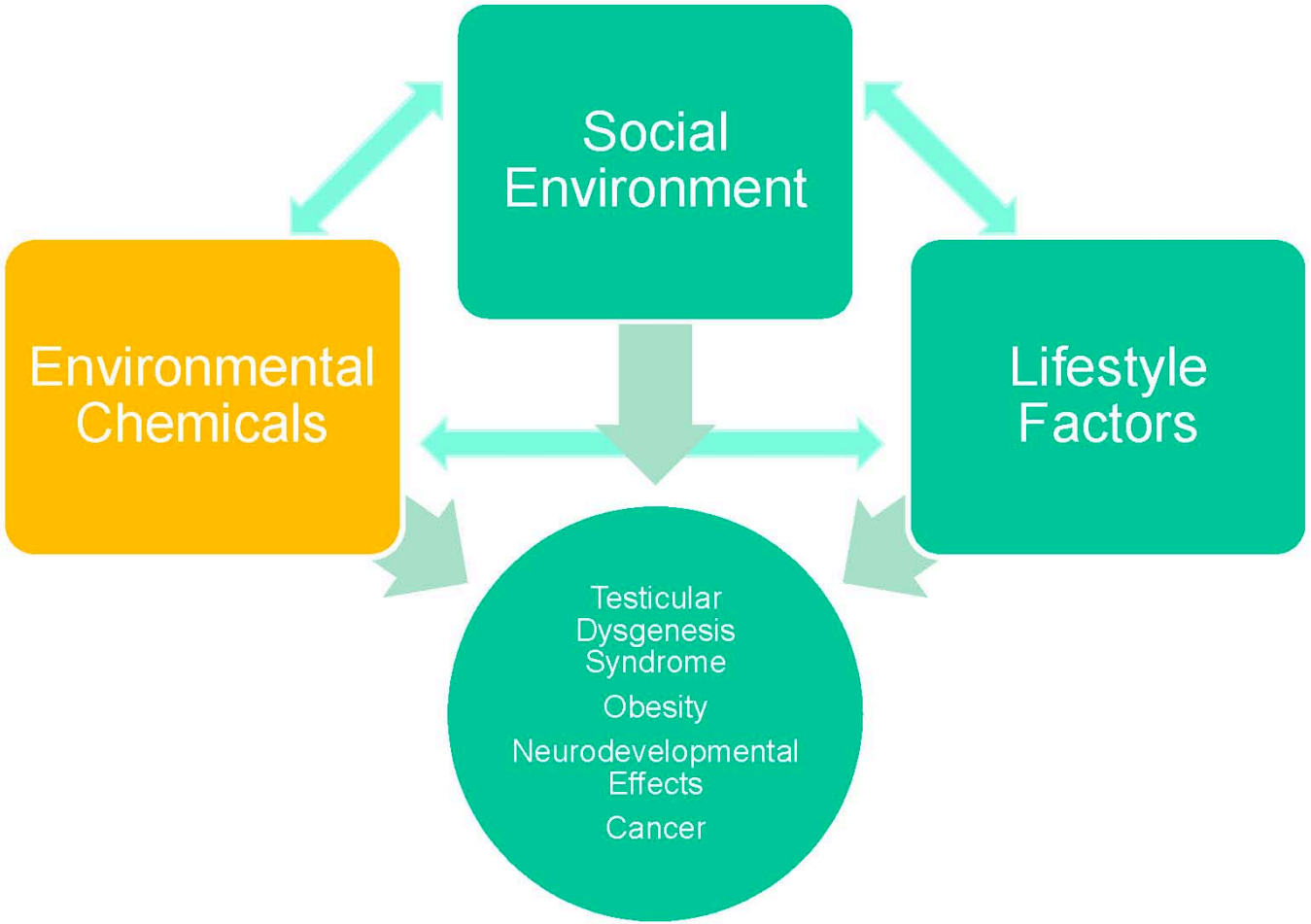
Real life is multifactorial



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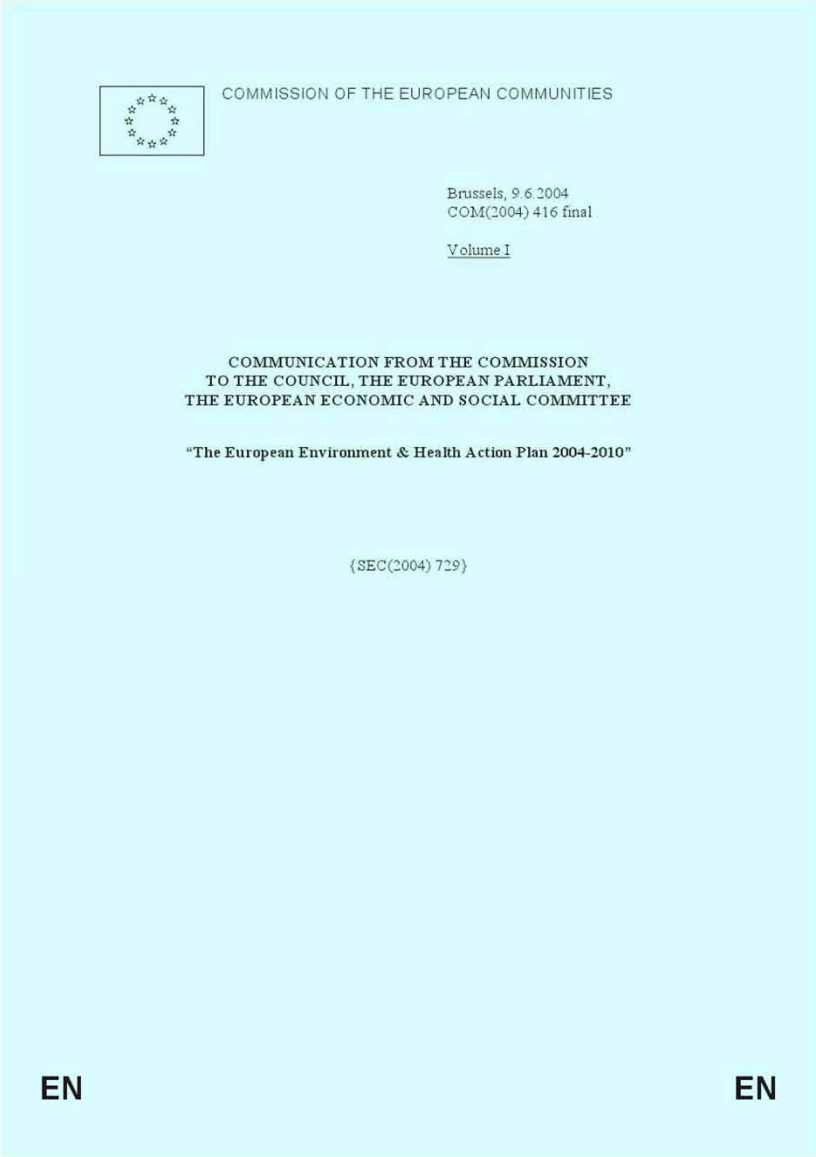
The European Environment & Health Action Plan



COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 9.6.2004
COM(2004) 416 final

Volume I

COMMUNICATION FROM THE COMMISSION
TO THE COUNCIL, THE EUROPEAN PARLIAMENT,
THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE

"The European Environment & Health Action Plan 2004-2010"

{SEC(2004) 729}

EN EN

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European Environment & Health Action Plan 2004-2010

improving the information chain by developing integrated environment and health information to understand the links between sources of pollutants and health effects:

Action 1: Develop environmental health indicators;

Action 2: Develop integrated monitoring of the environment, including food, to allow the determination of relevant human exposure;

Action 3: Develop a coherent approach to biomonitoring in Europe;

Action 4: Enhance coordination and joint activities on environment and health;

filling the knowledge gap by strengthening research on environment and health and identifying emerging issues:

Action 5: Integrate and strengthen European environment and health research;

Action 6: Target research on diseases, disorders and exposures;

Action 7: Develop methodological systems to analyse interactions between environment and health;

Action 8: Ensure that potential hazards on environment and health are identified and addressed;

reviewing policies and improving communication by developing awareness raising, risk communication, training and education to give citizens the information they need to make better health choices, and to make sure that professionals in each field are alert to environment and health interactions:

Action 9: Develop public health activities and networking on environmental health determinants through the public health programme;

Action 10: Promote training of professionals and improve organisational capacity in environment and health by reviewing and adjusting risk reduction policy;

Action 11: Coordinate ongoing risk reduction measures and focus on the priority diseases;

Action 12: Improve indoor air quality;

Action 13: Follow developments regarding electromagnetic fields.

Second
European Environment & Health Action Plan

COUNCIL OF
THE EUROPEAN UNION

EN

Improving environmental policy instruments
- Council conclusions -

3061st ENVIRONMENT Council meeting
Brussels, 20 December 2010

The Council adopted the following conclusions:

"THE COUNCIL OF THE EUROPEAN UNION

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Second European Environment & Health Action Plan

INVITES the Commission to further promote health through environment policy through the preparation as soon as possible of a second Environment and Health Action Plan (EHAP) in order to:
- address cross-cutting and emerging issues in a comprehensive way translating science into policies and actions;
- support the follow up and maintenance of network and activities developed within the framework of the EU Environment and Health Strategy and its first EHAP;
- ensure coherence and facilitate implementation of environment and health actions across EU;
- focus on the priorities also identified in the Parma Declaration on Environment and Health 6 ;
- evaluate the need for the development of specific measures for nanomaterials relating to risk assessment and management, information and monitoring, including the further development of a harmonized database for nanomaterials, while considering potential impacts;
- evaluate the need for the development of specific measures on endocrine disruptors and for the cumulative risk assessment of combination effects of chemicals, in order to ensure coherence of health aspects with the wider risk assessment of chemicals;

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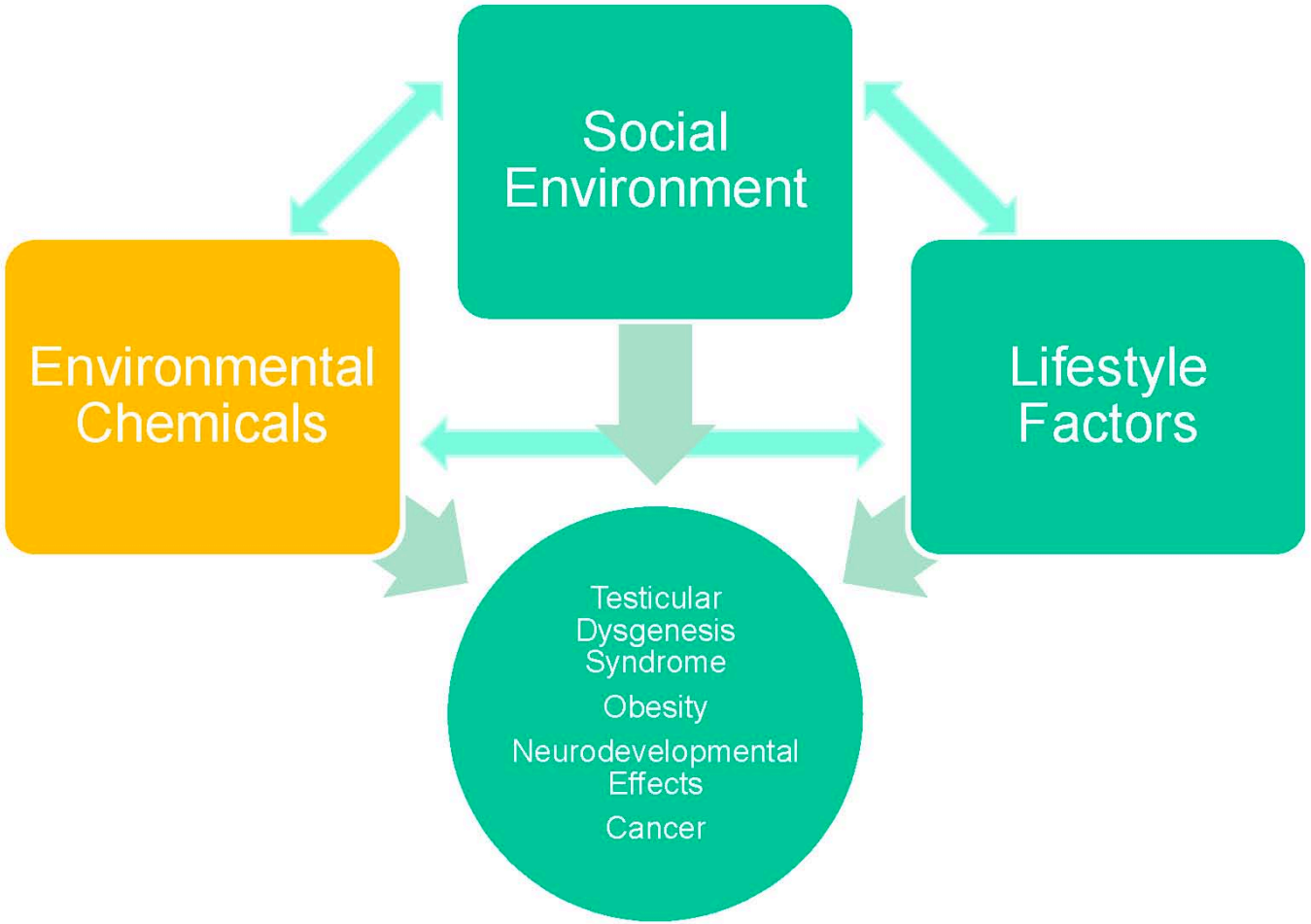
Health Assessment of Chemicals



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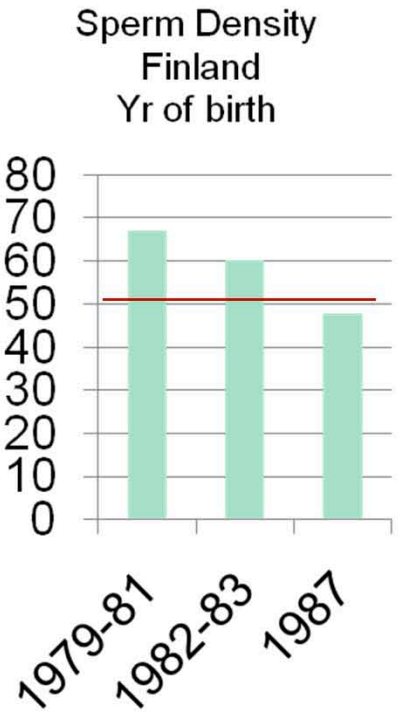
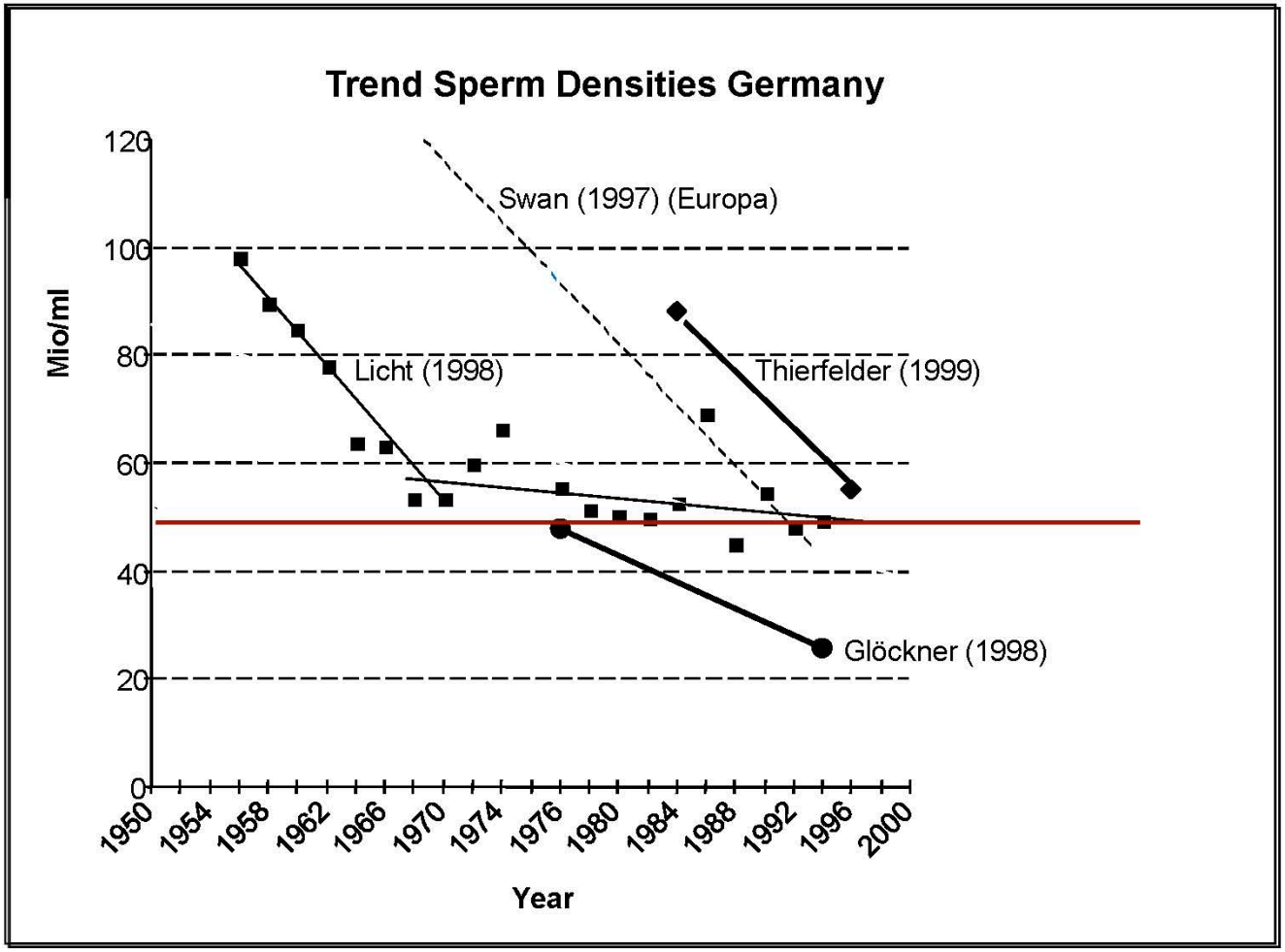
Trend: Sperm Density in Germany





Source: N. Jørgensen et al.
Int. J. Androl. 2011

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Possible causes for low reproductive health

- TCDD exposure in childhood (Mocarelli 2008),
- TCDD,OCDD in adipose tissue (Cok 2008)
- Actual phthalate exposure (Zhang 2006)
- Actual PCB und and pesticide body burden (Hauser rev. 2006)
- Prenatal exposure to DES and synthetic estrogens: TDS (Skakkebaek 2004)
- Bisphenol A levels in urine (Li 2010)
- Phthalate metabolites in urine (Wirth 2008)
- Anabolic steroids (Schill 1985)
- Not Alcohol, smoking, bicycle riding (Al-Inany 2001)

Control of chemicals: REACH

- By the end of 2010
  - ECHA holds 2.75 mio preregistrations from 6500 companies
  - 4300 chemicals have been registered at the ECHA
  - 24675 dossiers have been submitted
- Substances :
  - more than 1000 tons per annum or
  - that are labeled as carcinogenic, mutagenic or toxic to reproduction (CMR Cat. 1&2/1A&1B) at more than 1 tpa, or
  - that are labeled as R50/53 (very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment) at more than 100 tpa

Appendixes Application for Authorisation: PPP

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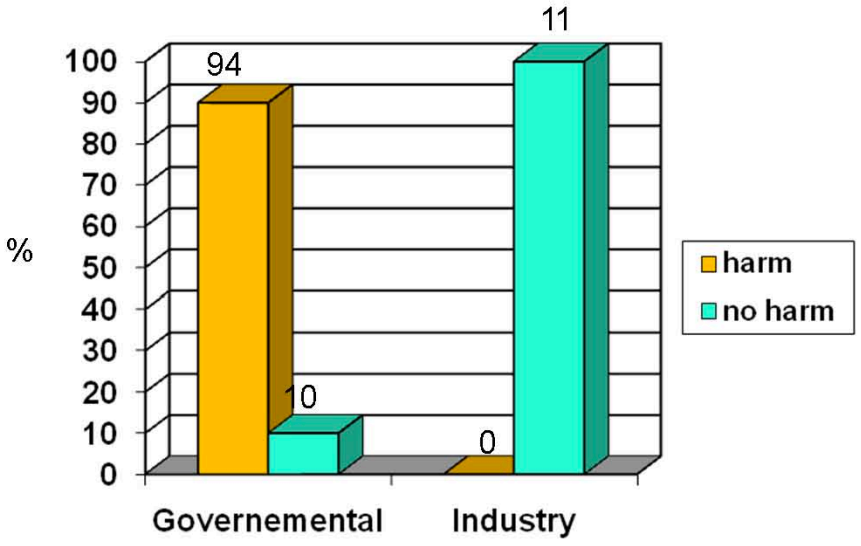
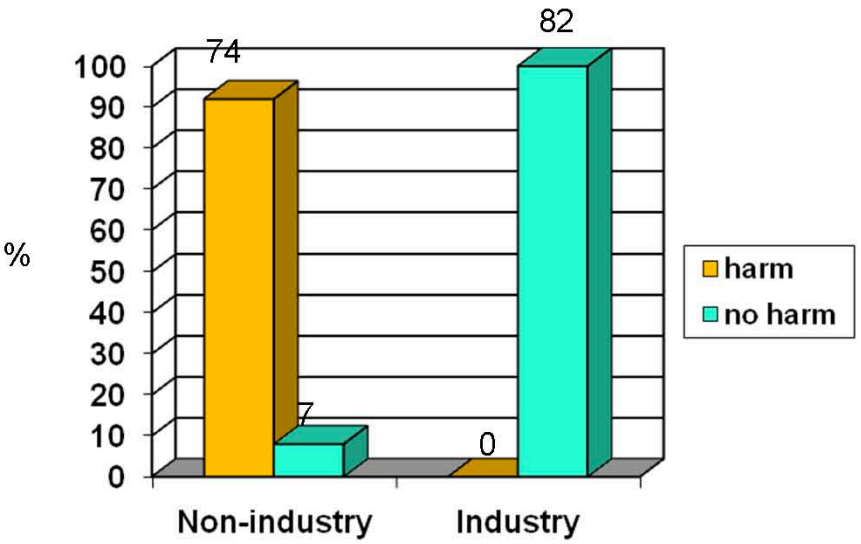
Outcome and Funding: There is a bias



Bisphenol A

Vom Saal 2005



Aspartam

Walton 2001

Additional control might be necessary

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REACH

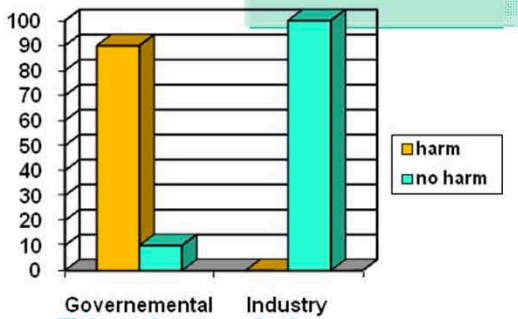
Industry

hires

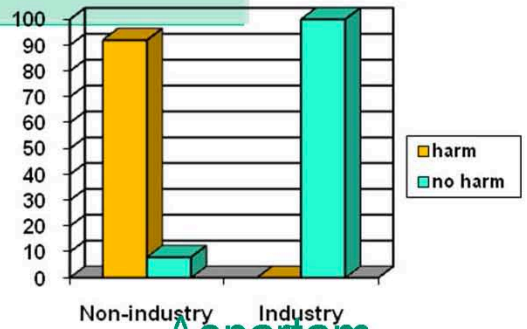
€

Contracting Labs

perform tests



Bisphenol A



Aspartam

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Post-REACH

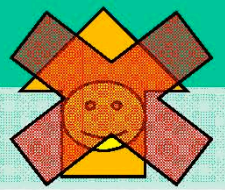
Industry

gives money, gets results

€

Fund

hires



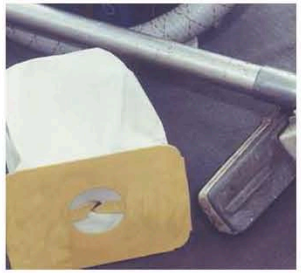
€

Contract Labs

perform tests

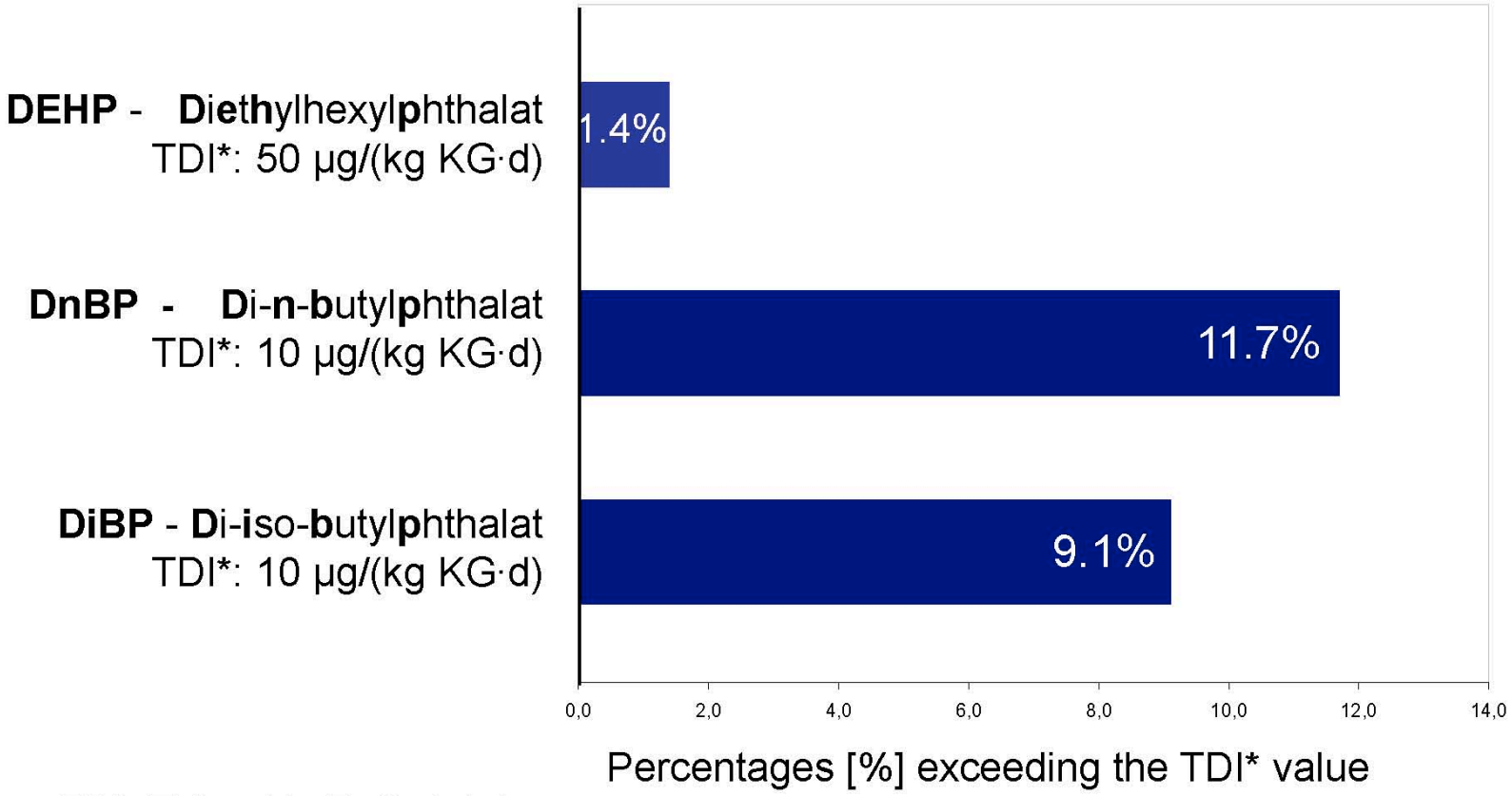
Control of health assessment

Epidemiology and human biomonitoring



Identification of a possible impact on health I

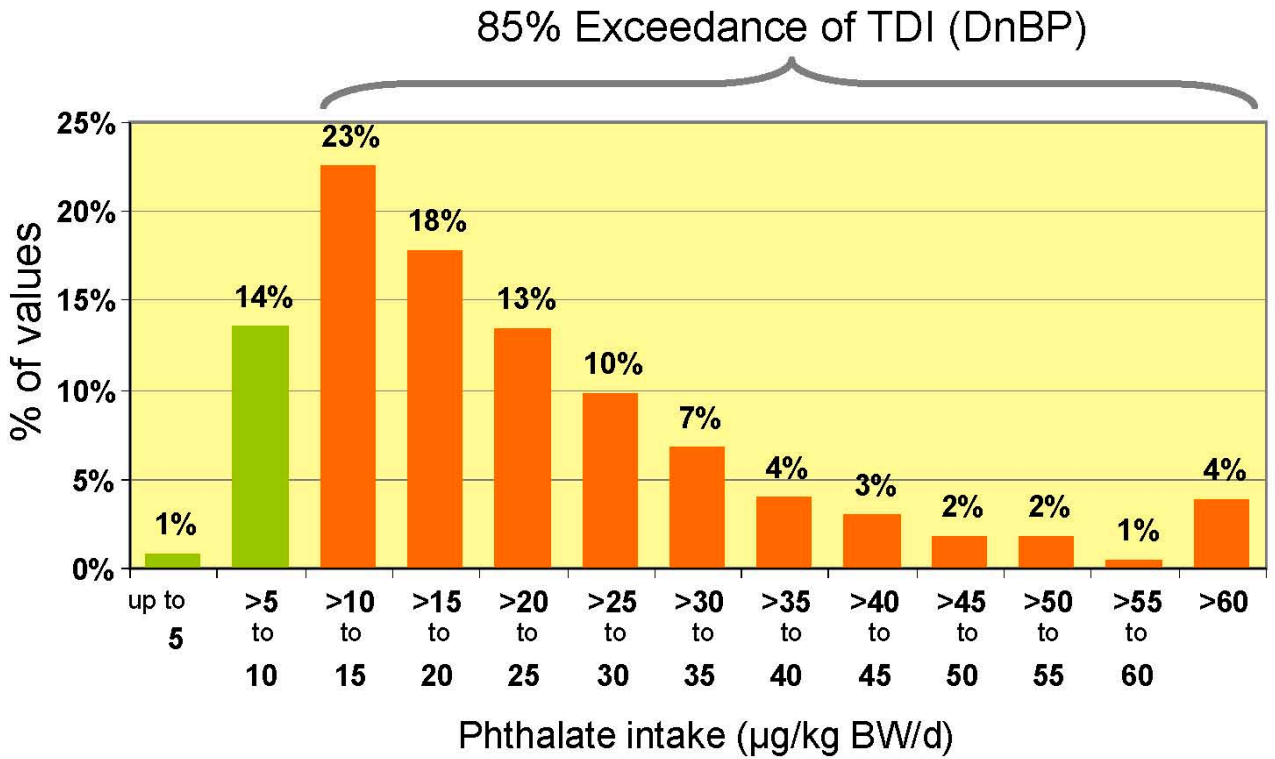
Phthalates metabolites in urine of children aged 3 to 14



* TDI: **T**olerable **D**aily **I**ntake

Identification of a possible impact on health II

Σ weighted intake rates of 5 phthalates



GerES (2003-2006): children aged 3 to 14
Weighting according to factors decribed by Earl Gray, US-EPA
Intake rates: daily intake related to volume calculated by Wittassek

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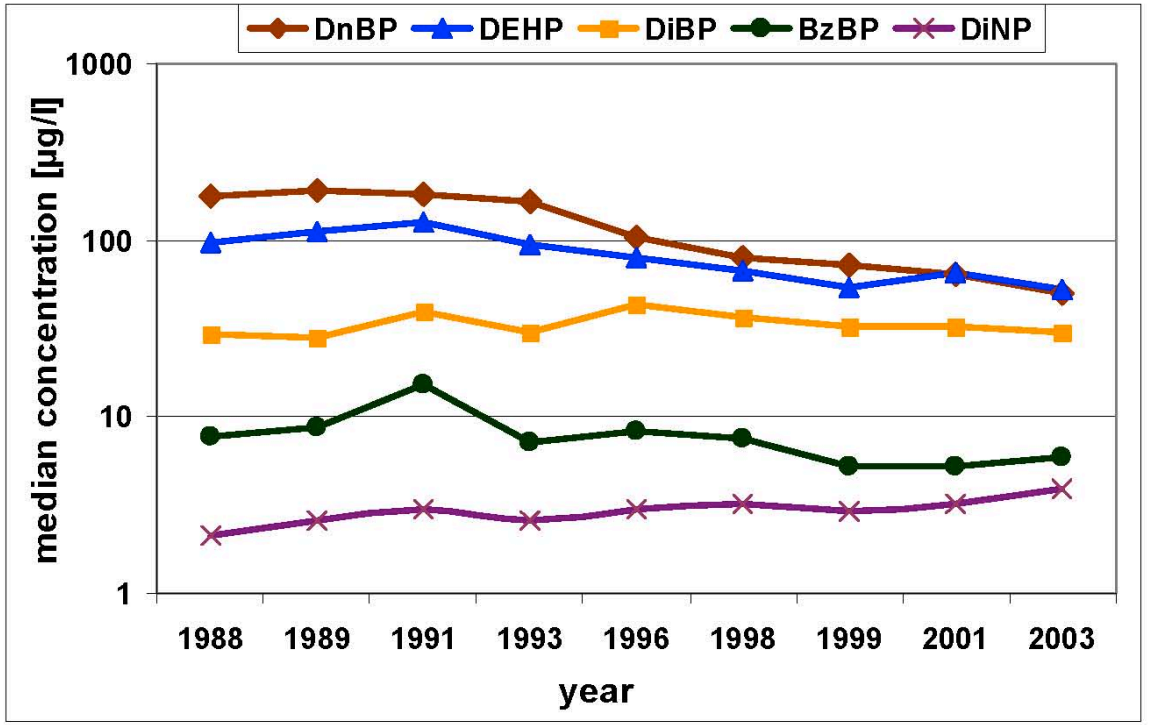
Biomonitoring Phthalates

data from the German ESB



Wittasek et al (2007)

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Please remember the following:

- We have solved the simple problems in the field of environment and health
- The remaining problems are complex and need an integrated approach: Life science, social science, psychology…
- EHAP II is needed with targets, indicators, and control mechanisms
- Strengthening independent science
- Conrolling risk assessment

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