

# HEALTH IMPACT ASSESSMENT OF THE PROPOSED SMOKE-FREE LEGISLATION IN HUNGARY

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# ACTIVE SMOKING



## Health effects

- carcinogenesis
- impaired fertility, teratogenesis
- irritation, chronic inflammation
- atherosclerosis
- immunomodulation
- peptic ulcer, bile stone, Crohn's disease

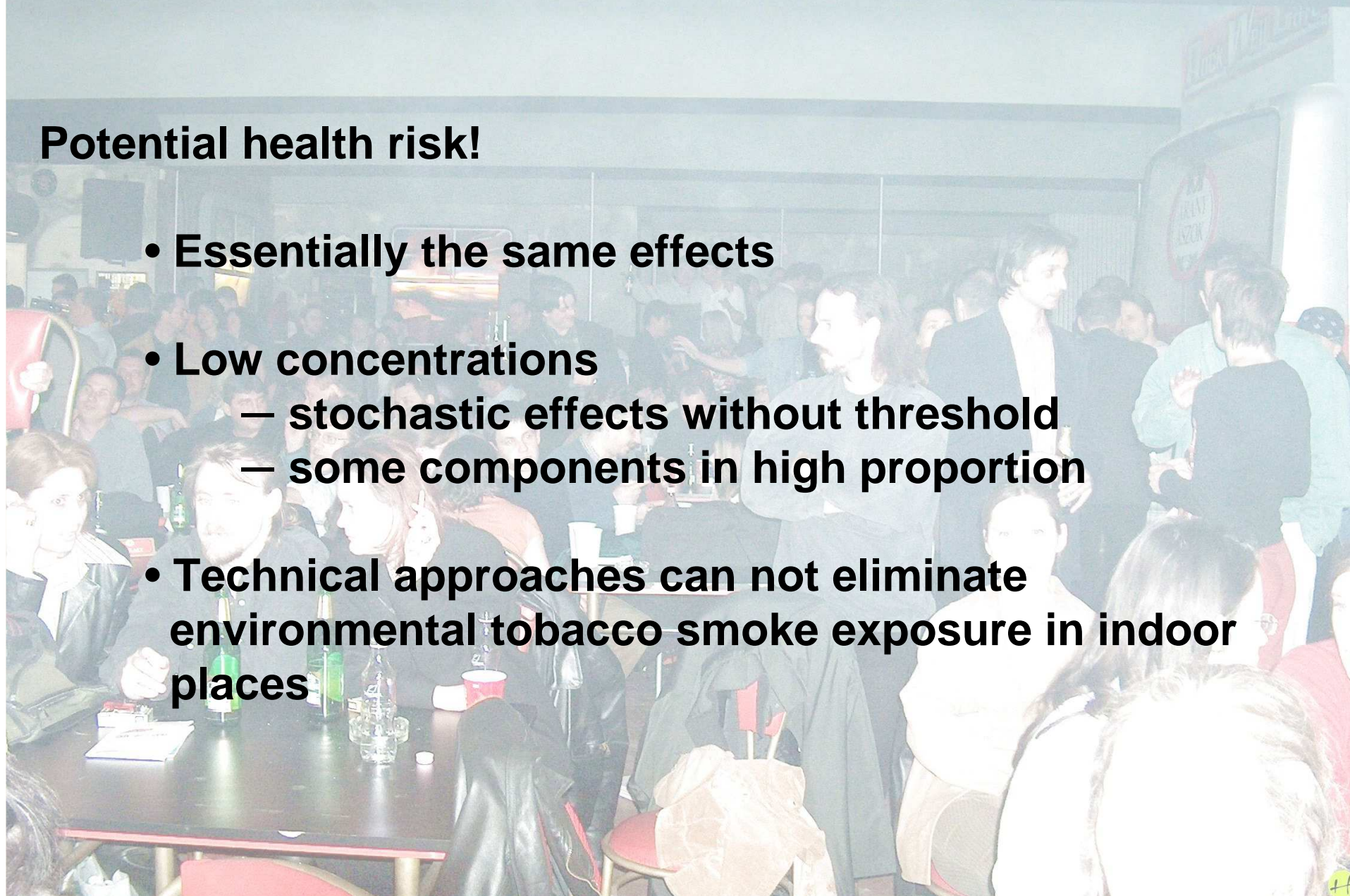
## Target organs

- respiratory tract
- circulatory system
- gastrointestinal system
- nervous system
- genitourinary system
- haemopoietic and endocrine system

# PASSIVE SMOKING

**Potential health risk!**

- **Essentially the same effects**
- **Low concentrations**
  - **stochastic effects without threshold**
  - **some components in high proportion**
- **Technical approaches can not eliminate environmental tobacco smoke exposure in indoor places**



# ANTI-SMOKING POLICIES

## MPOWER policy package, WHO

- **M**onitor tobacco use and prevention policies
- **P**rotect people from tobacco smoke
- **O**ffer help to quit tobacco use
- **W**arn about the dangers of tobacco
- **E**nforce bans on tobacco advertising, promotion and sponsorship
- **R**aise taxes on tobacco

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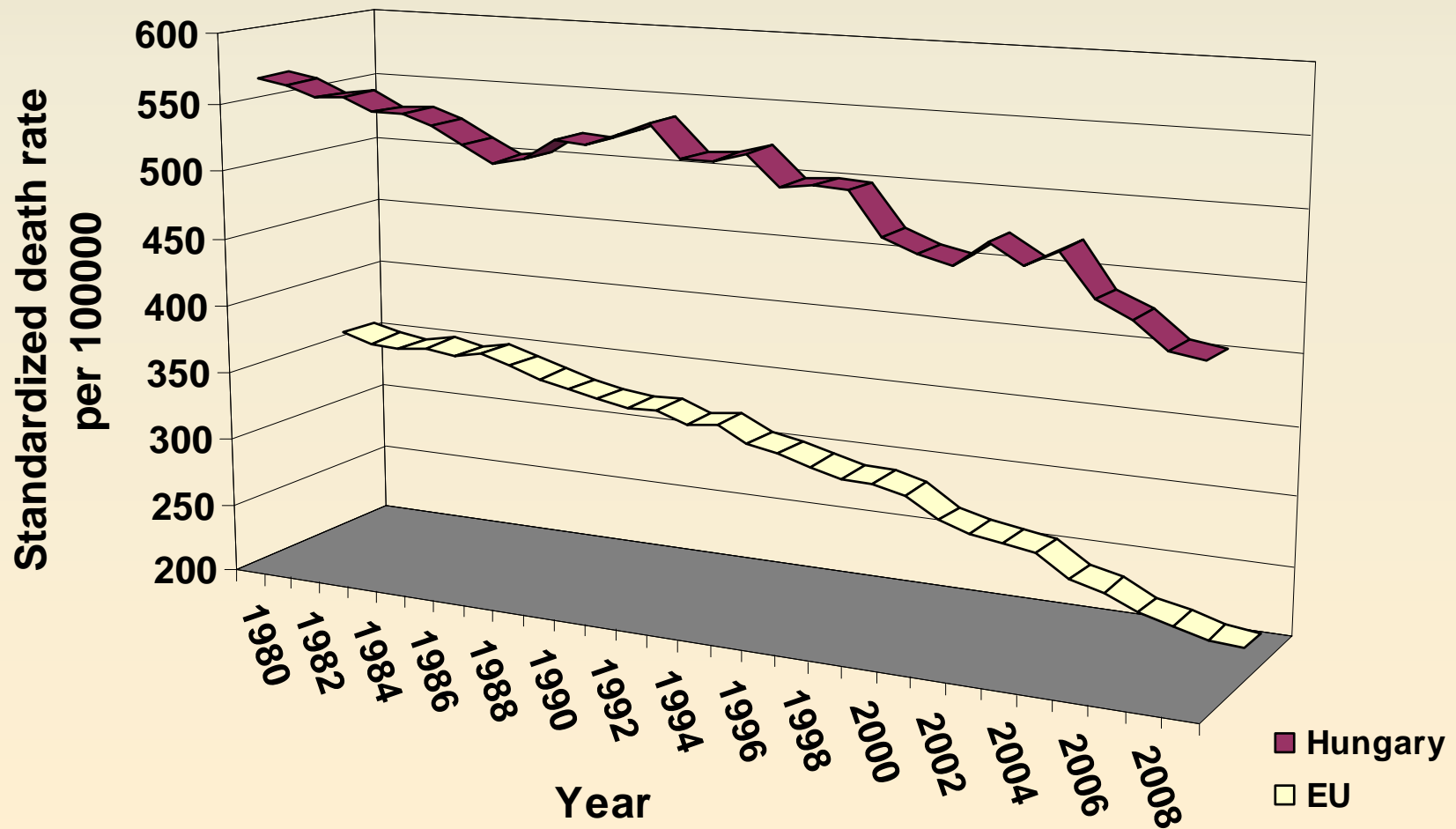
# **FURTHER RESTRICTION OF THE HUNGARIAN ANTI-SMOKING POLICY**

**Time is on!**

- **significant health burden of smoking**
- **developing knowledge**
- **international obligations**
- **examples to be followed, applicable experiences**



# PUBLIC HEALTH IMPORTANCE OF SMOKING-RELATED DISEASES IN HUNGARY



# **TIGHTENING OF THE HUNGARIAN ANTI-SMOKING POLICY**

**Comprehensive prospective health impact assessment of the proposed amendment of Act No XLII of 1999 on the protection of non-smokers and on certain rules of consumption and trade of tobacco products.**

- full prohibition of smoking in closed public- and workplaces and on public transport vehicles**
- further restrictions of promotion and trade**



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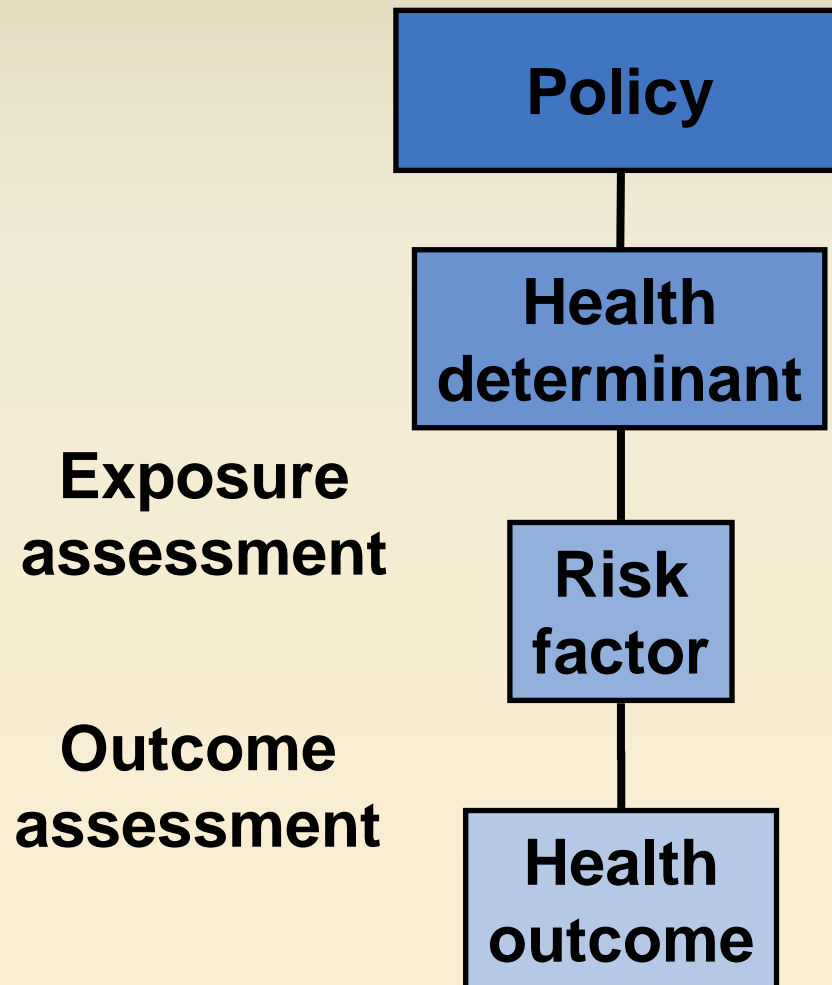
- full prohibition of smoking in closed public- and workplaces and on public transport vehicles**
- further restrictions of promotion and trade**

# **METHOD**

**Calculation of attributable mortality and disability adjusted life years due to smoking for the present and the upcoming situation after the legal changes take place.**

**Quantification needs full chain approach.**

# FULL CHAIN ASSESSMENT



# FULL IMPACT CHAIN

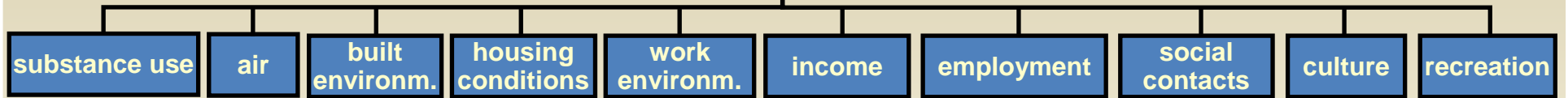
Amendment of Act No XLII of 1999

# HEALTH DETERMINANTS

|                            | Determinants of health               | Positive effect | Negative effect | No effect |
|----------------------------|--------------------------------------|-----------------|-----------------|-----------|
| Lifestyle                  | Substance use (tobacco)              | +               |                 |           |
| Physical environment       | Air                                  | +               |                 |           |
|                            | Built environment and land use       | +               |                 | +         |
|                            | Housing conditions                   | +               |                 | +         |
|                            | Working environment                  | +               |                 |           |
| Socio-economic environment | Income and social status             | +               | +               | +         |
|                            | Employment                           |                 | +               | +         |
|                            | Social contacts                      | +               | +               | +         |
|                            | Culture                              | +               |                 |           |
|                            | Recreation                           | +               |                 |           |
| Health care                | Access to/quality of health services | +               |                 | +         |

# FULL IMPACT CHAIN

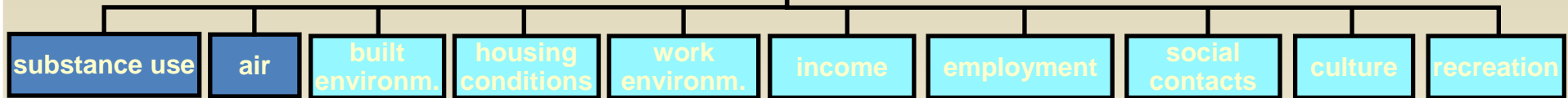
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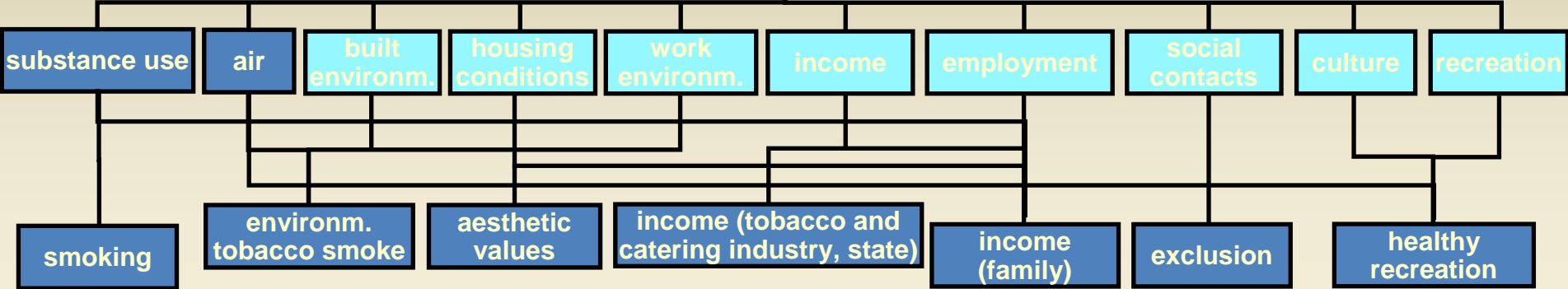
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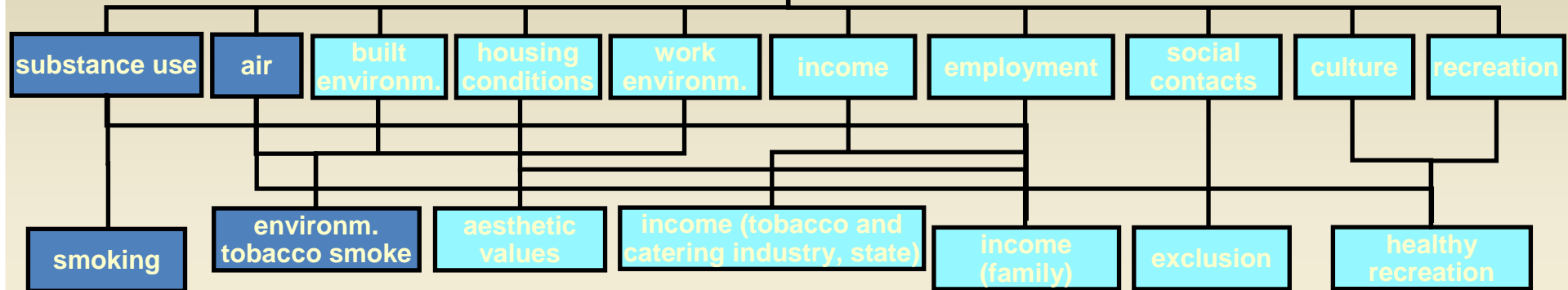
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# **EXPOSURE ASSESSMENT**

## **Prevalence decrease of active smoking**

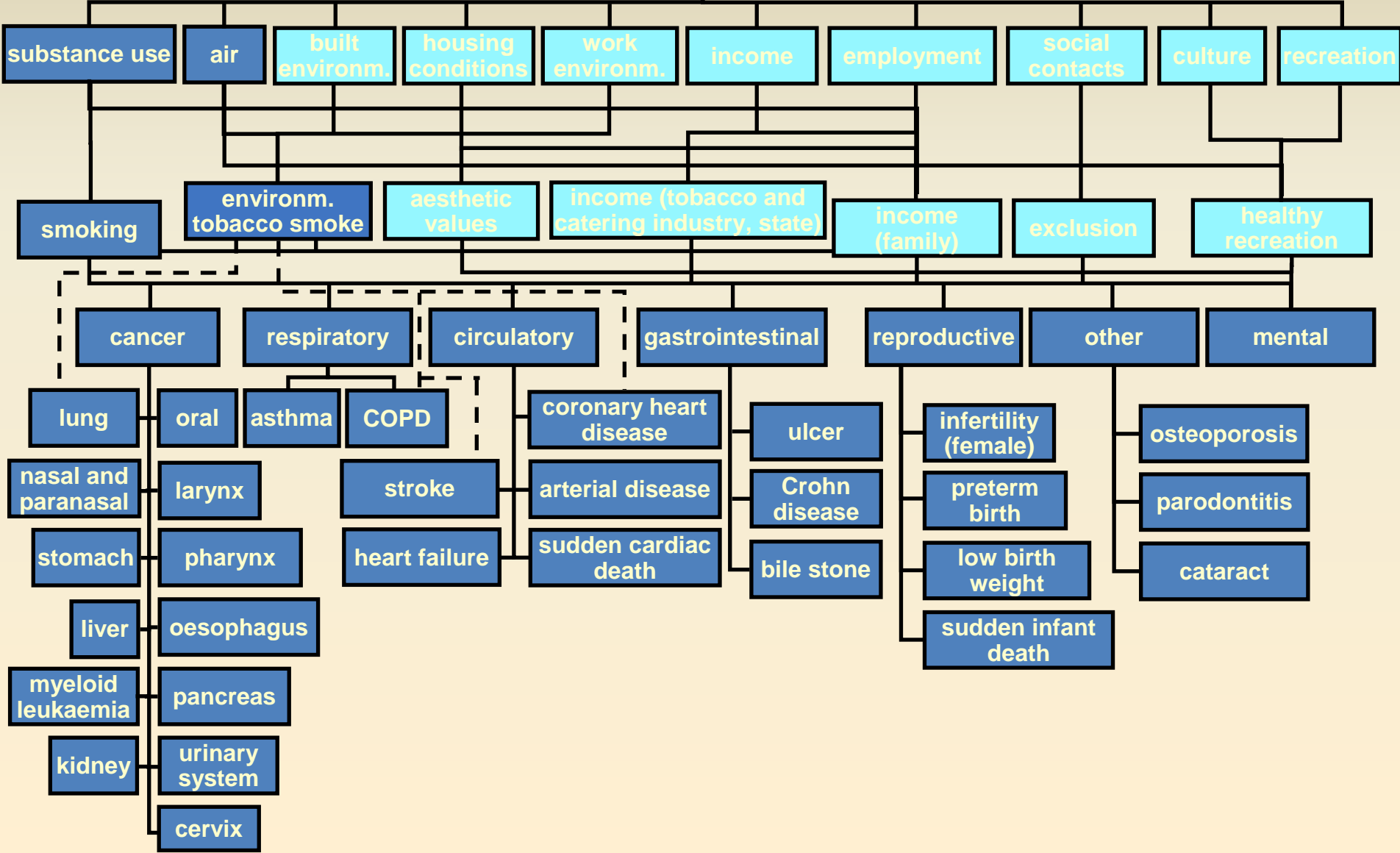
- **7% in the total population**

## **Prevalence decrease of passive smoking**

- **66% in workplaces**
- **95% in hospitality venues**
- **5.9% in homes**

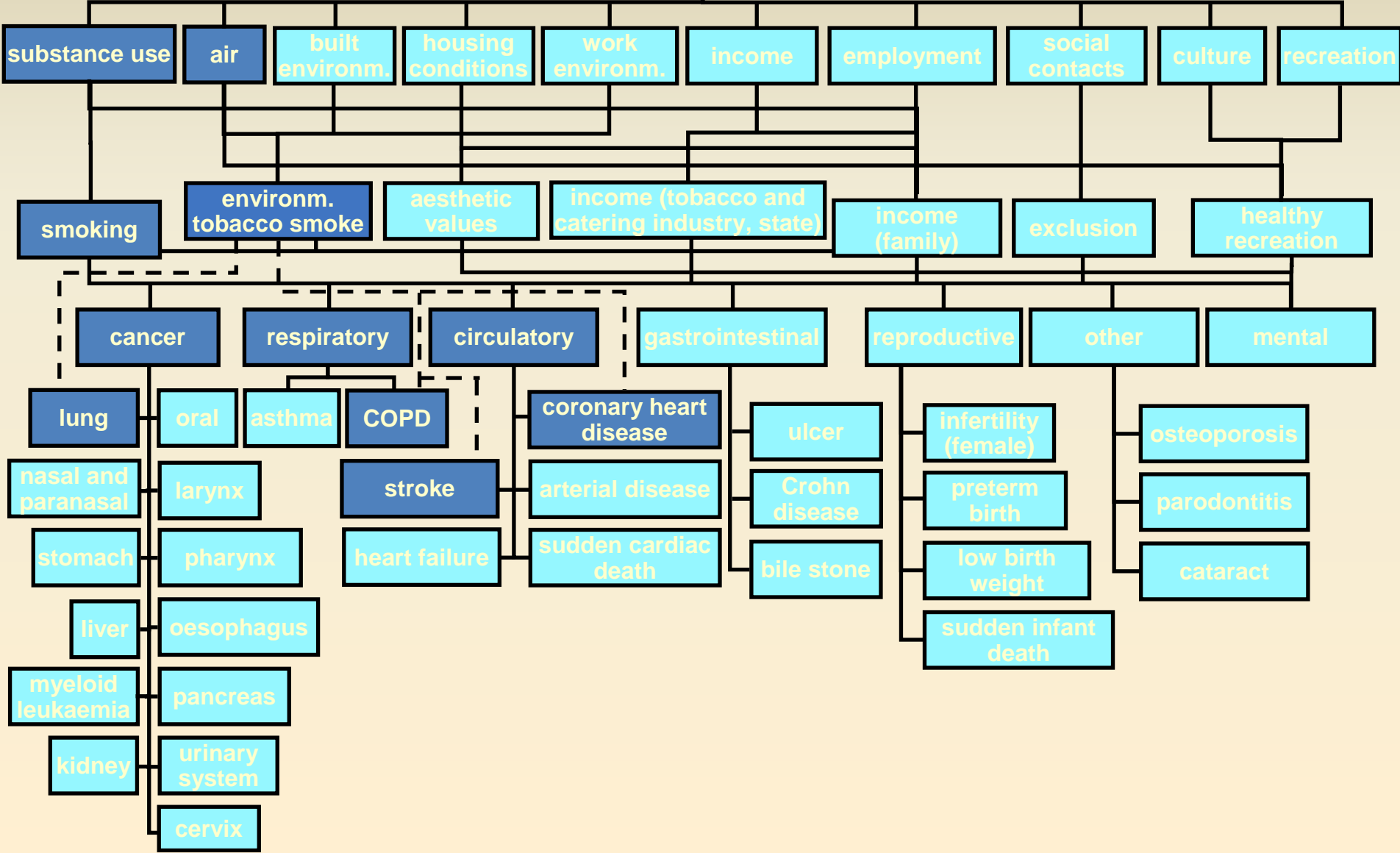
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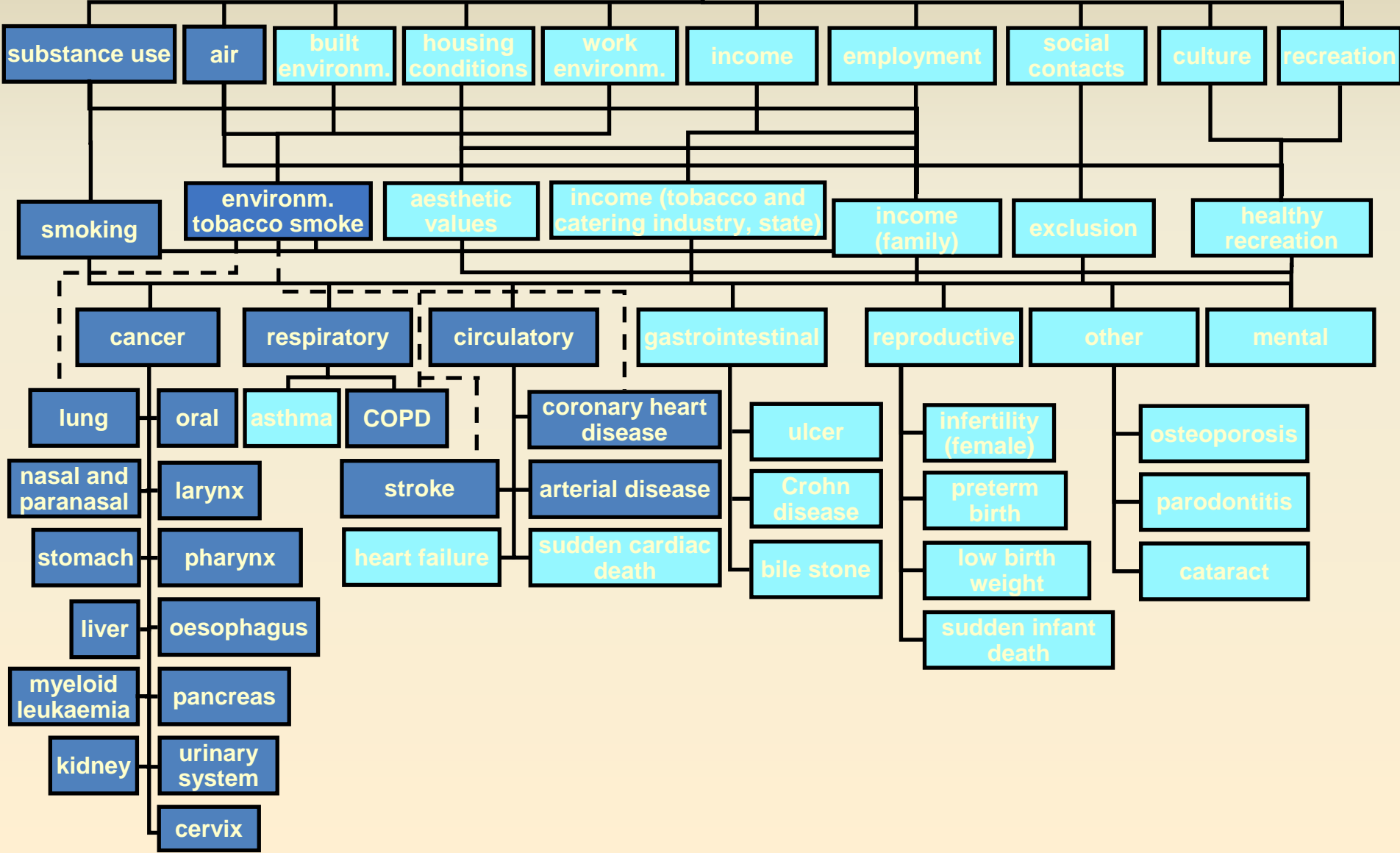
Amendment of Act No XLII of 1999





# FULL IMPACT CHAIN

Amendment of Act No XLII of 1999



# **OUTCOME ASSESSMENT**

**Calculation of disease burden related to active and passive smoking for the baseline and the predicted situation after the prohibition takes place.**

- **valid data**
- **valid functions**

# **AVAILABLE DATA SOURCES**

## **Demographic and mortality data**

- **Central Statistical Office**

## **Morbidity data**

- **General Practitioners Morbidity  
Sentinel Stations Programme**
- **Cancer Registry**
- **Koranyi National Institute for Tuberculosis  
and Pulmonology**

## **Exposure data**

- **study on the aetiology of chronic liver disease  
(Univ. of Debrecen, School of Public Health)**

# APPLIED FUNCTIONS

## Association measures

- relative risks from the literature
- preferably from meta-analyses
- sex-specific when available
- distinction of active, former and never smokers

## Functions

- WHO Global burden of disease study
- age-specific population attributable risk fractions
- standard discount rate (0.03)
- standard age weights ( $\beta=0.04$ )

# **HEALTH OUTCOME MEASURES**

## **Measures of disease burden**

- **attributable death**
- **potential years of life lost**
- **years of life lived with disability**
- **disability adjusted life years**

# **TIME CONSIDERATION**

## **Short term effect**

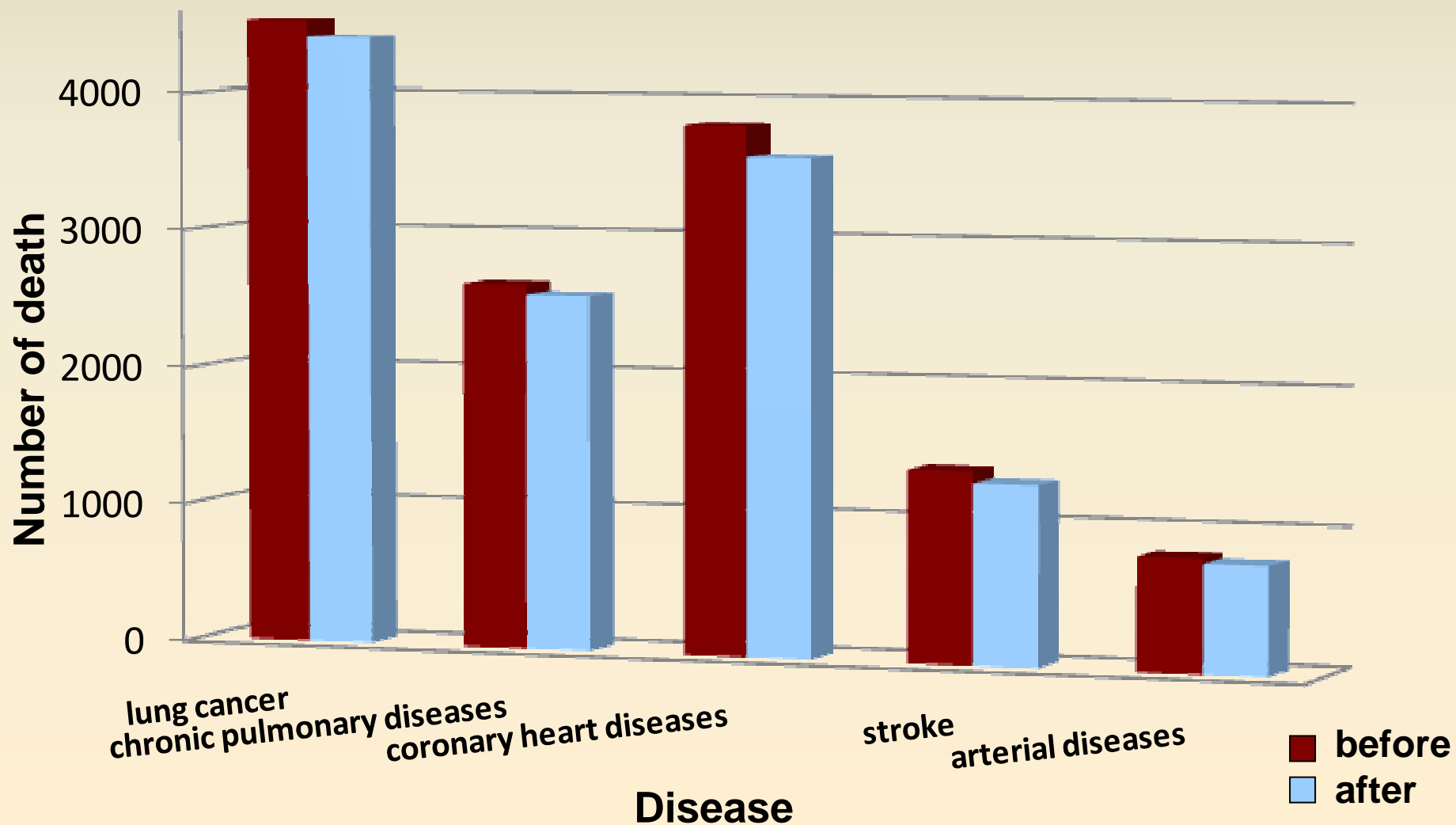
- **active and former smokers included**
- **initially the majority (85%) of reduction in active smoking is attributable to quitting**
- **risk of major diseases get back to normal in 15 years except for lung cancer**

## **Long term effects**

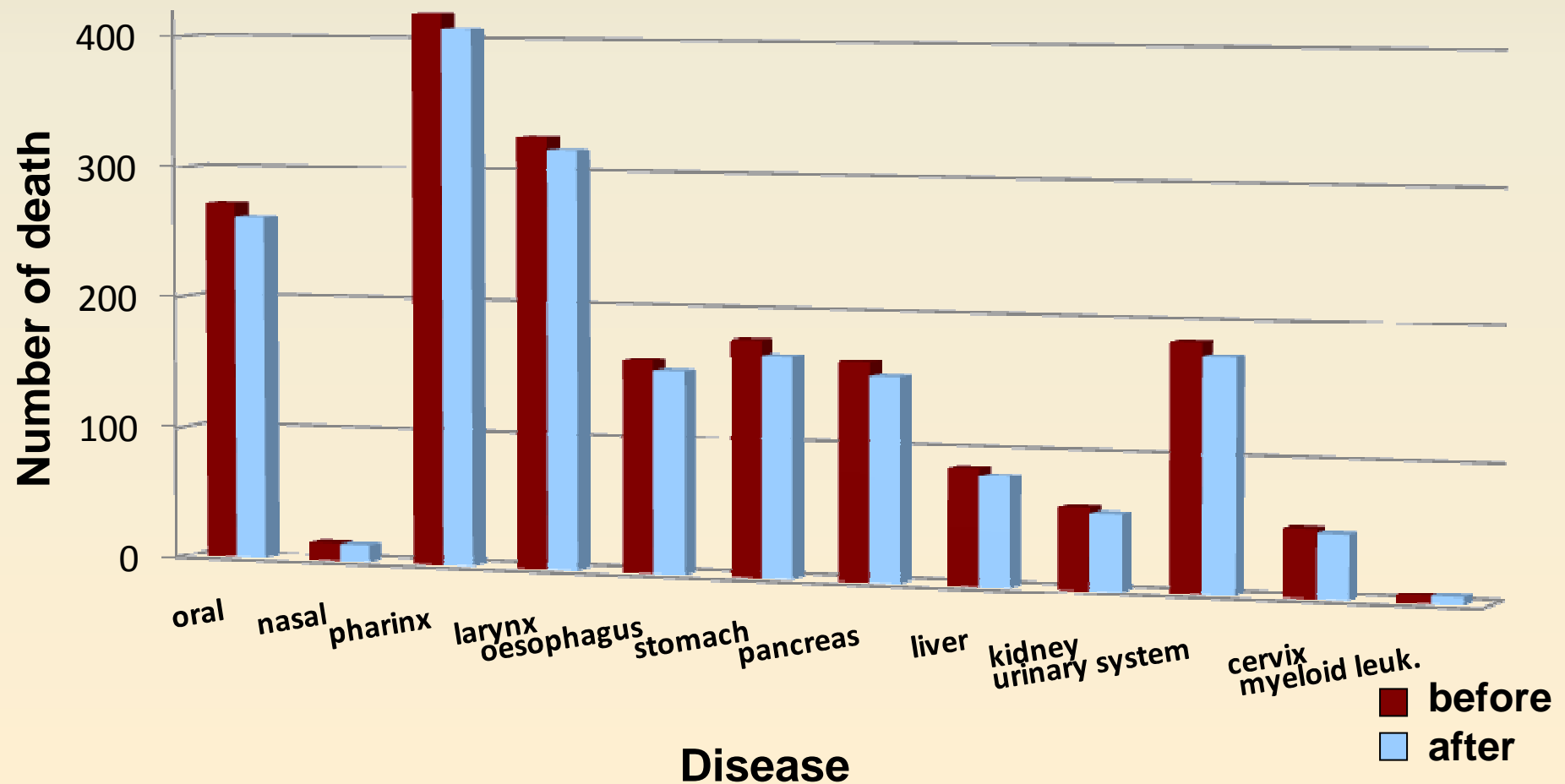
- **only active smokers included**



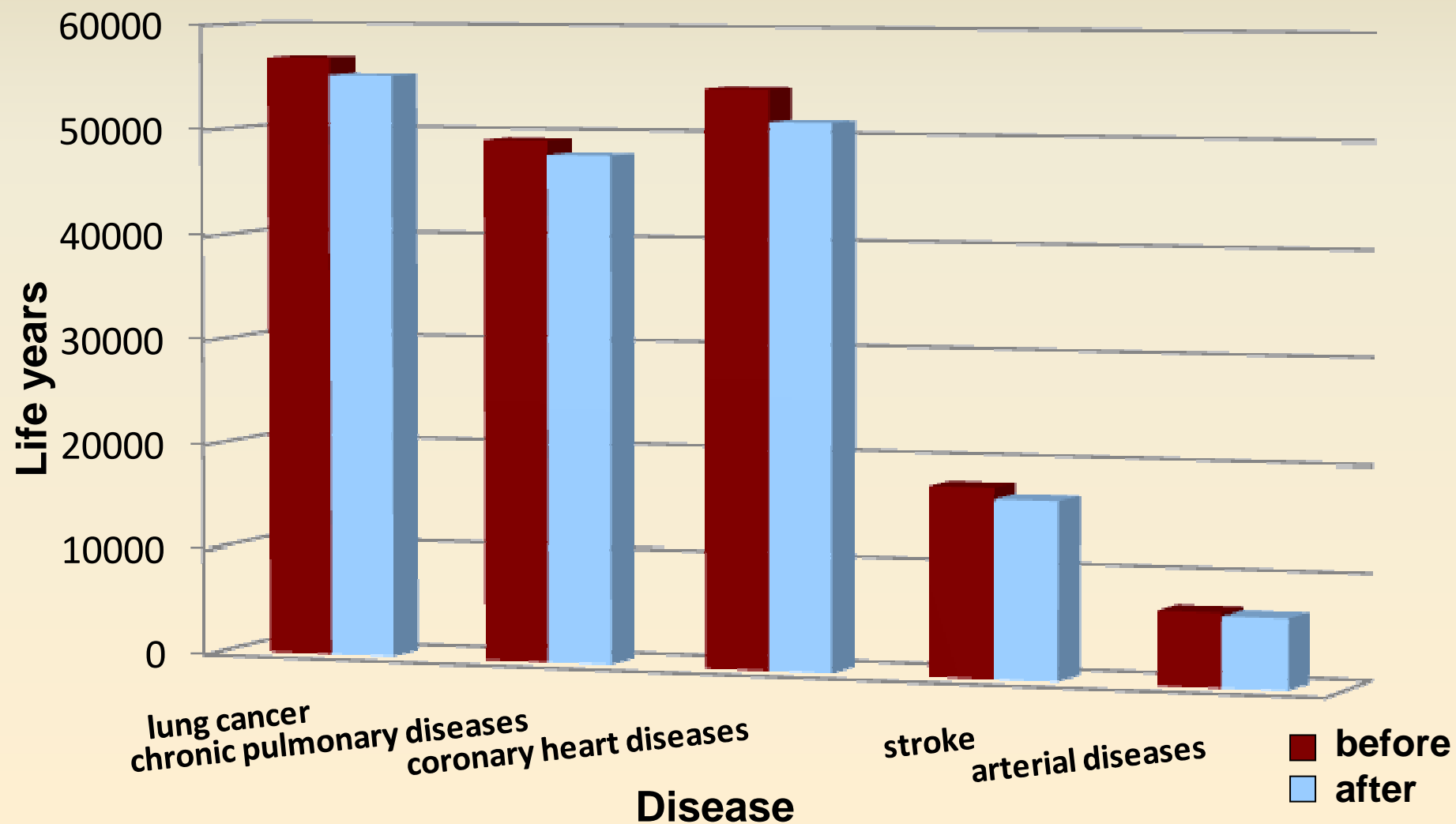
# Attributable death of active smoking in the Hungarian population (1)



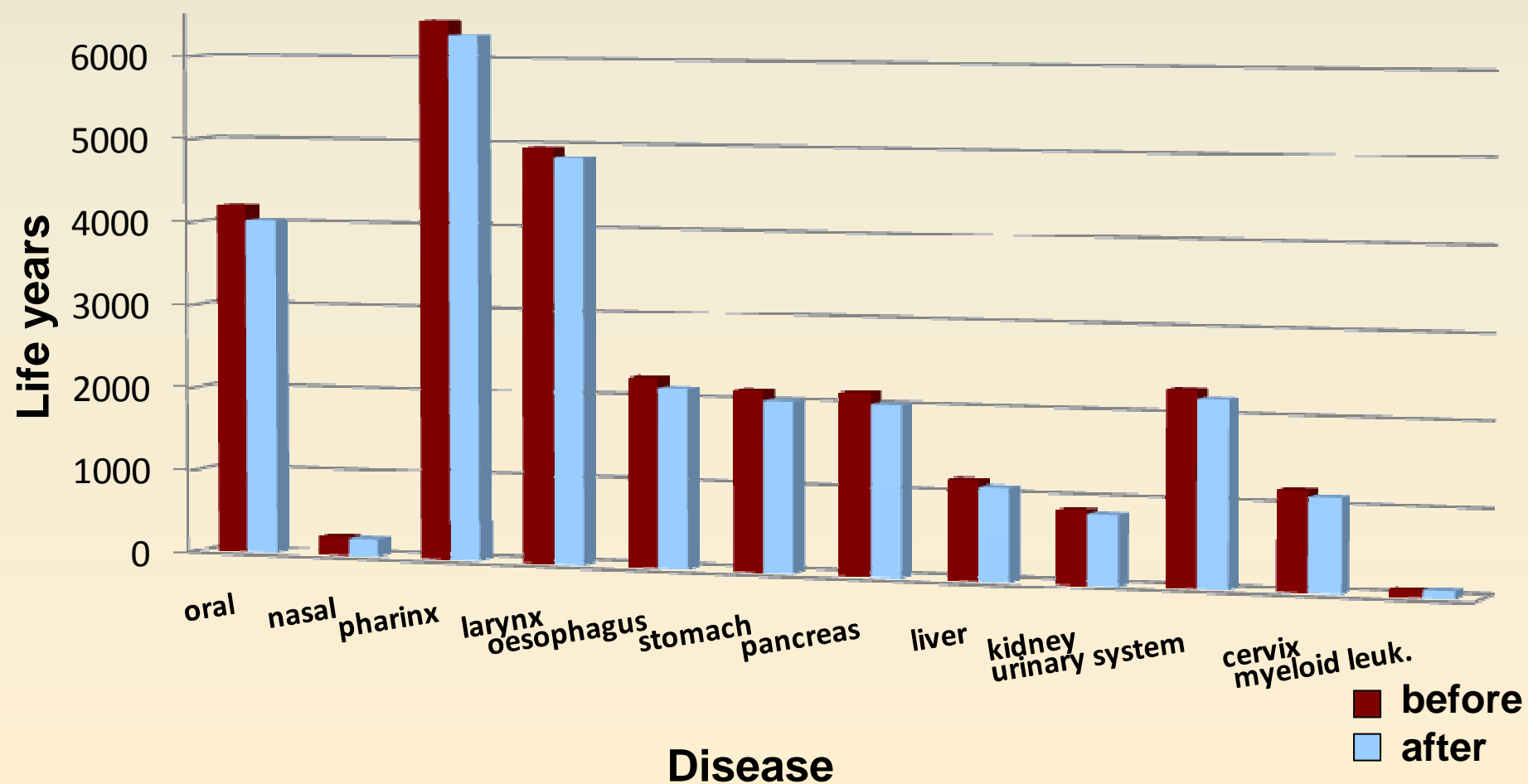
# Attributable death of active smoking in the Hungarian population (2)



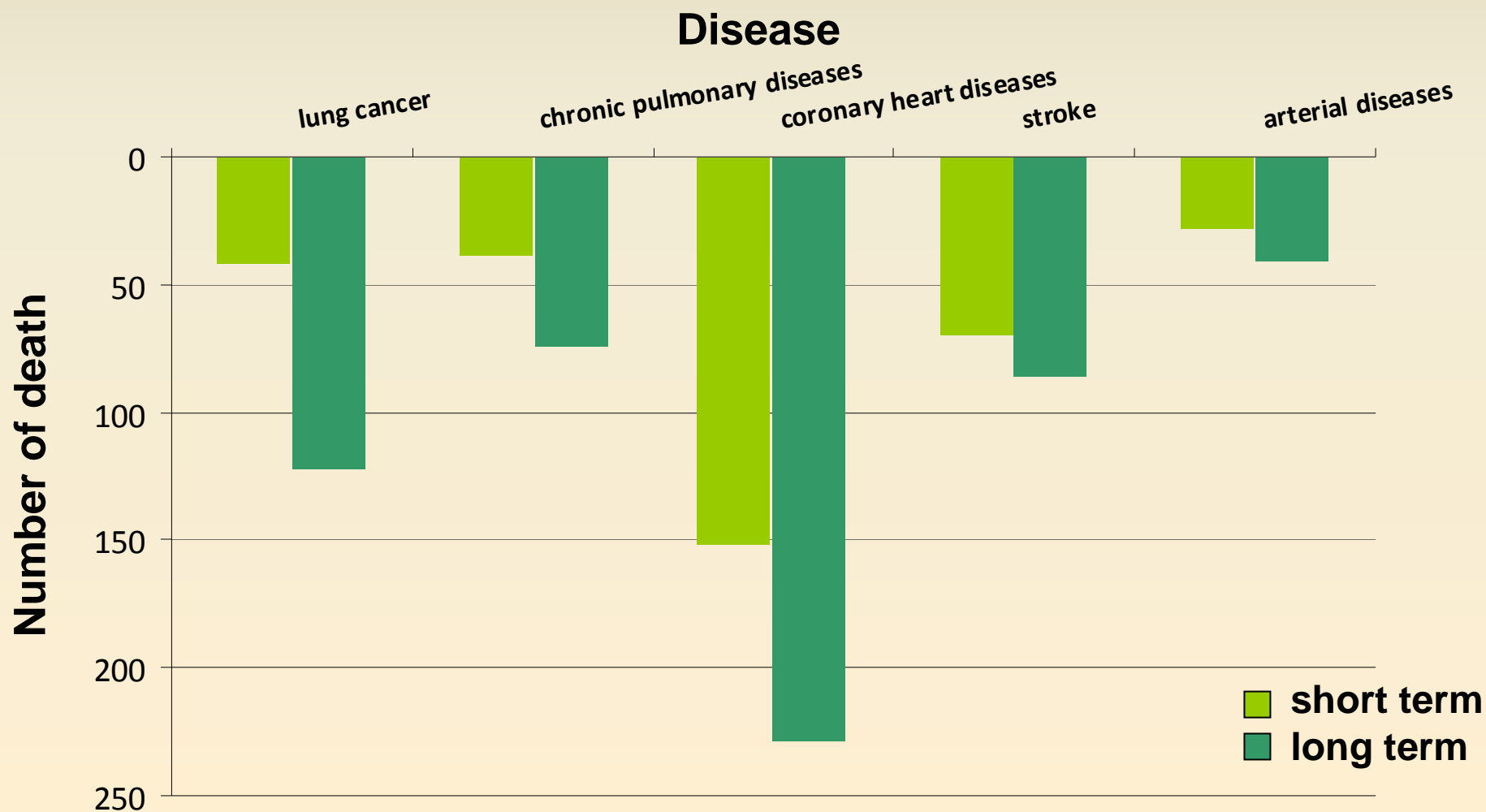
# Disability adjusted life years of active smoking in the Hungarian population (1)



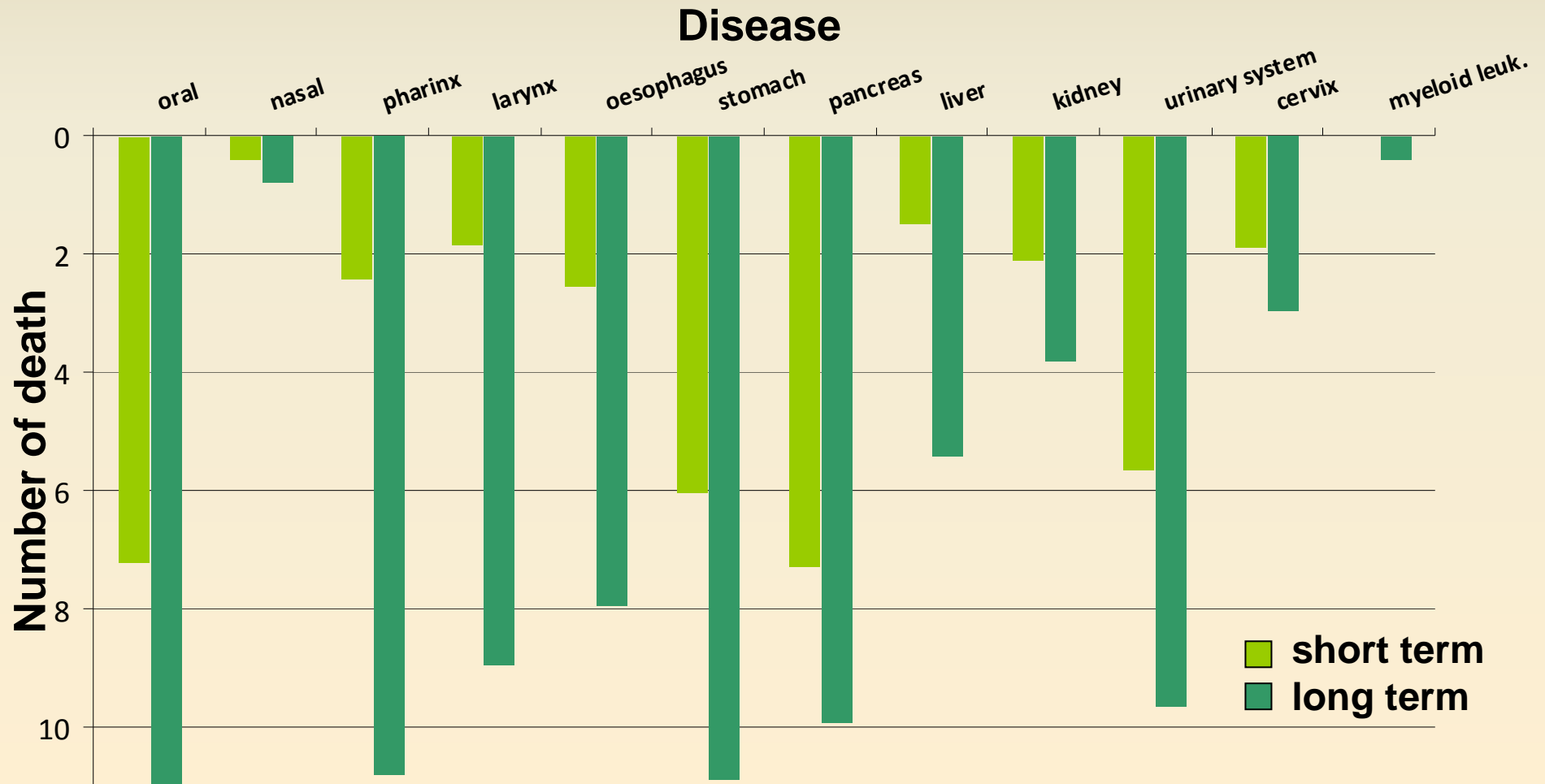
## Disability adjusted life years of active smoking in the Hungarian population (2)



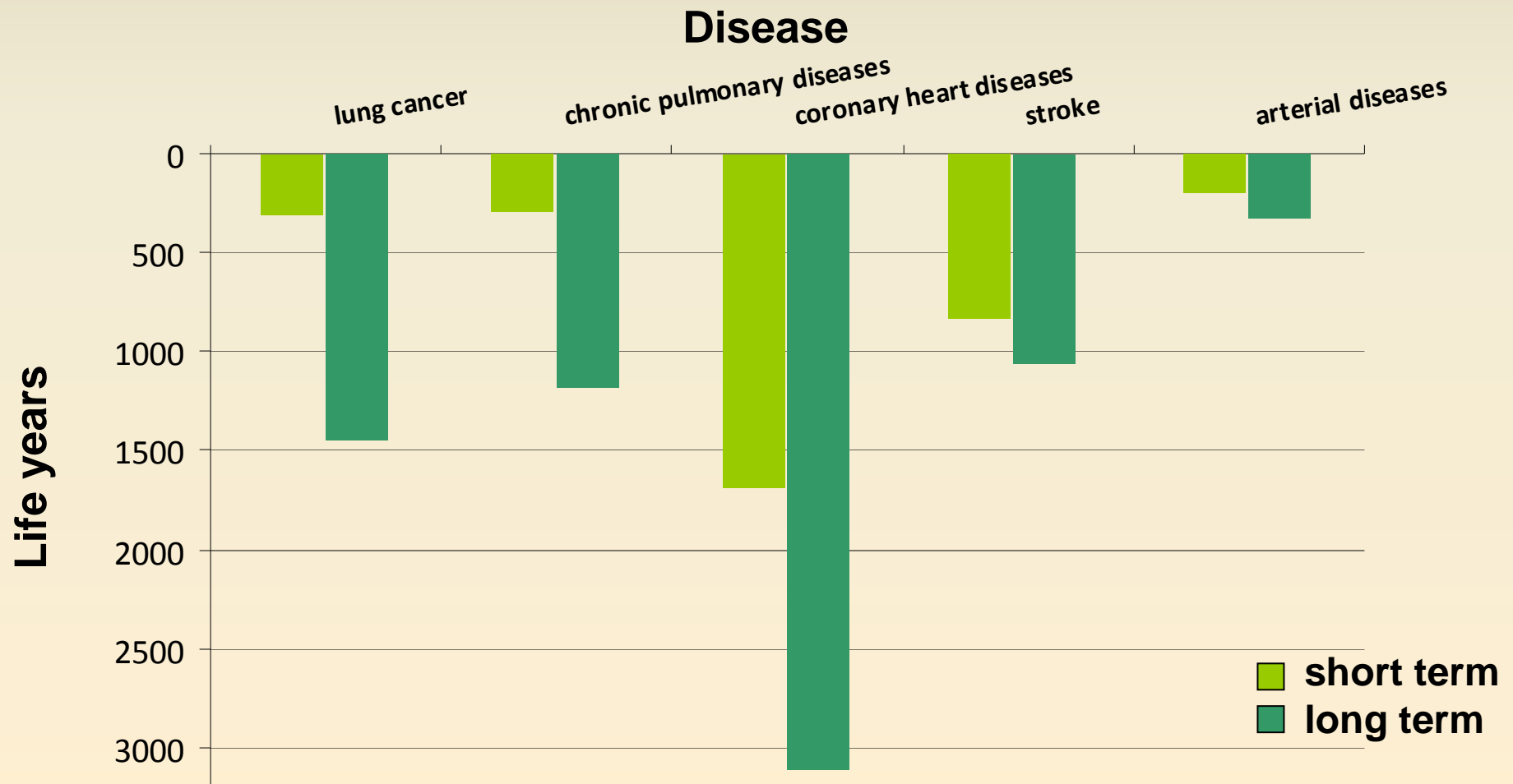
# Reduction in the number of attributable death of active smoking in the Hungarian population due to the proposal (1)



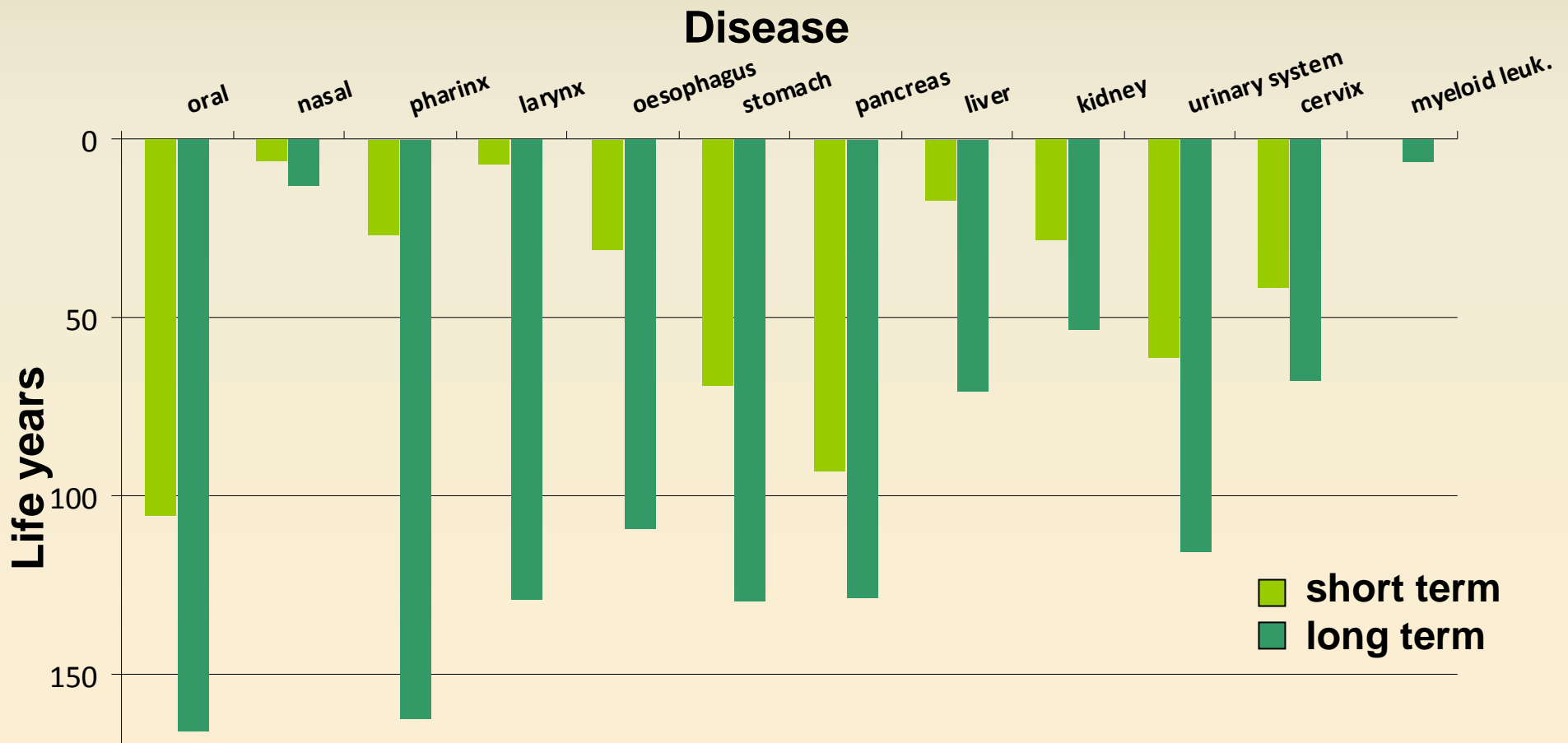
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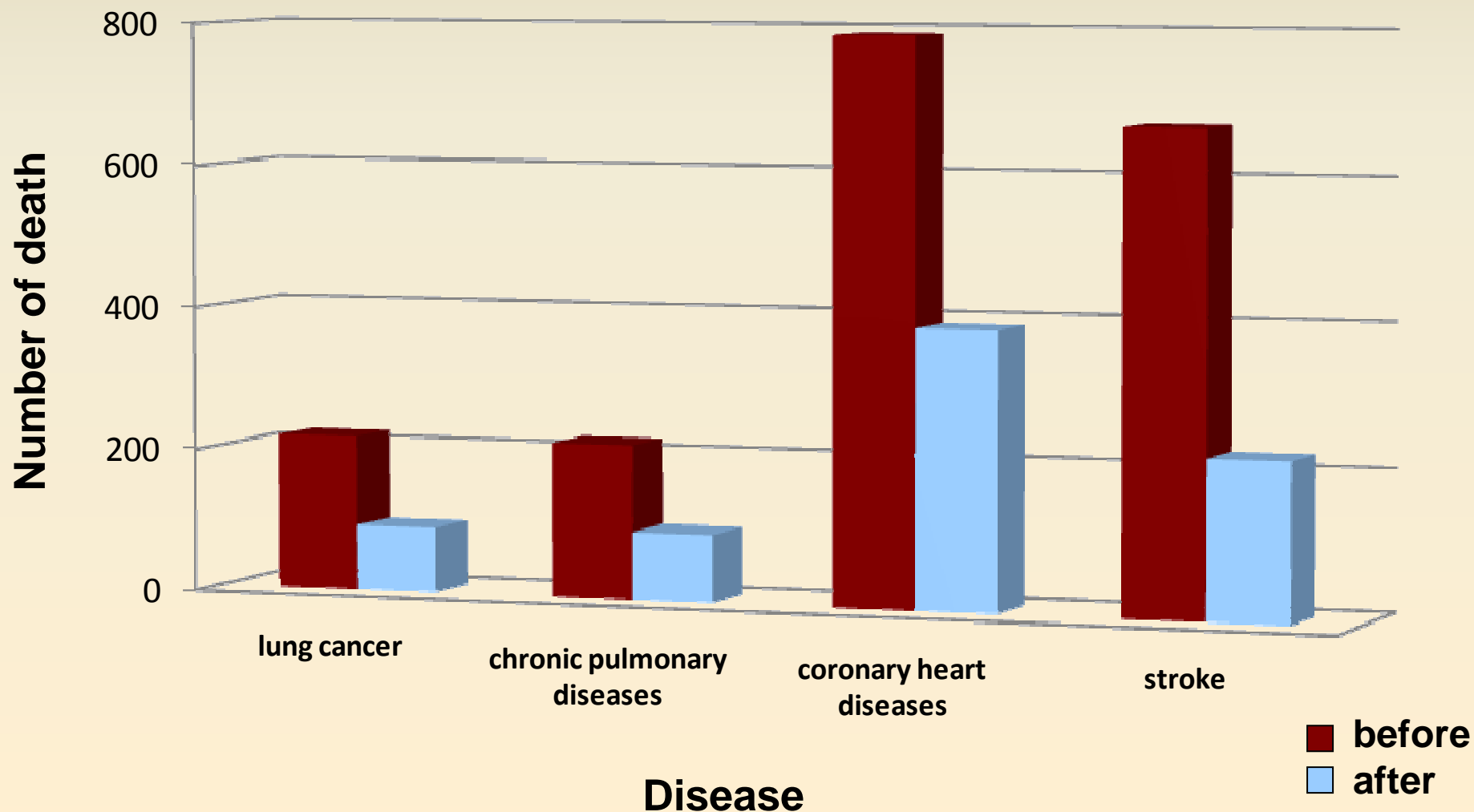


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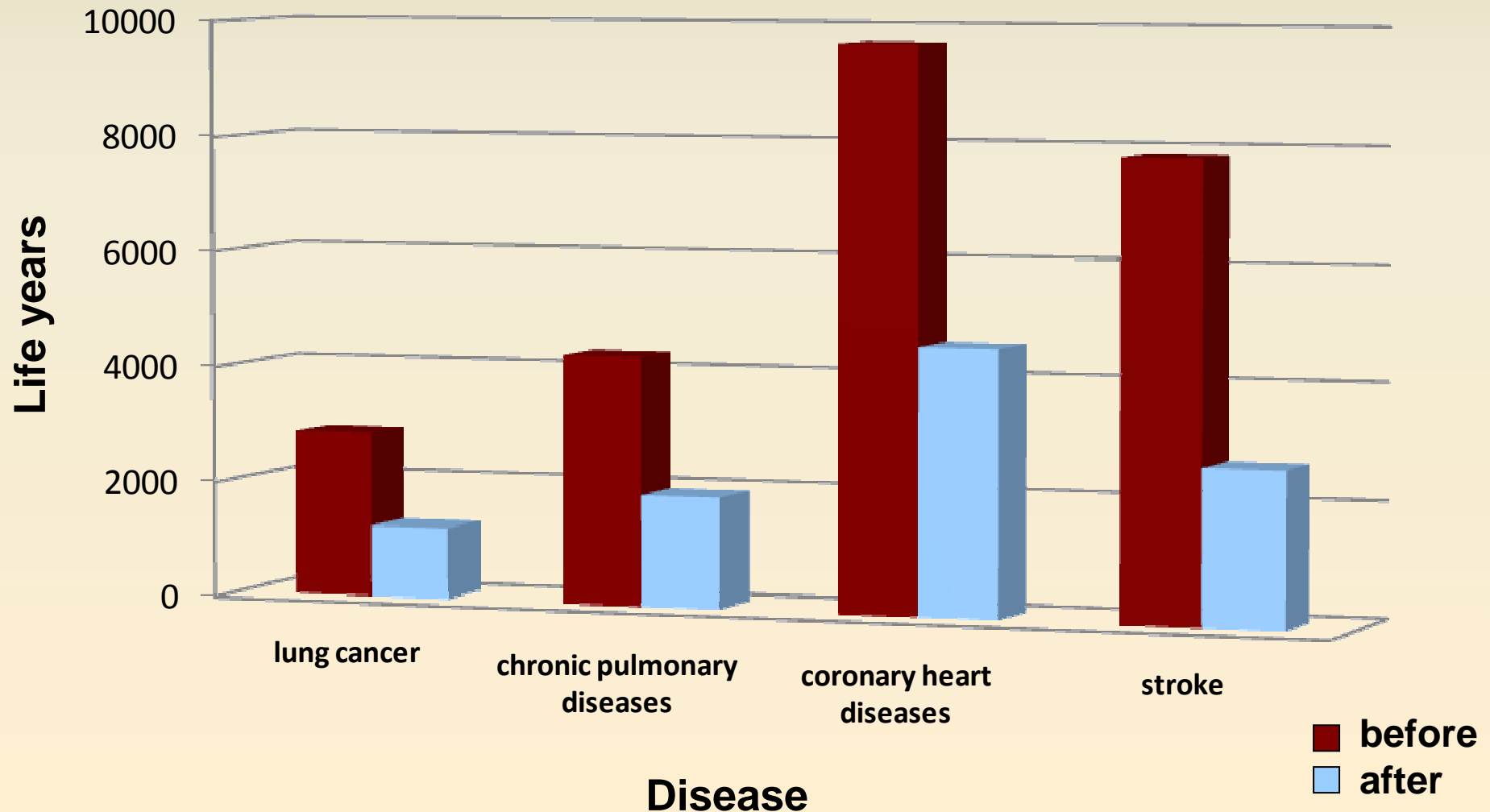




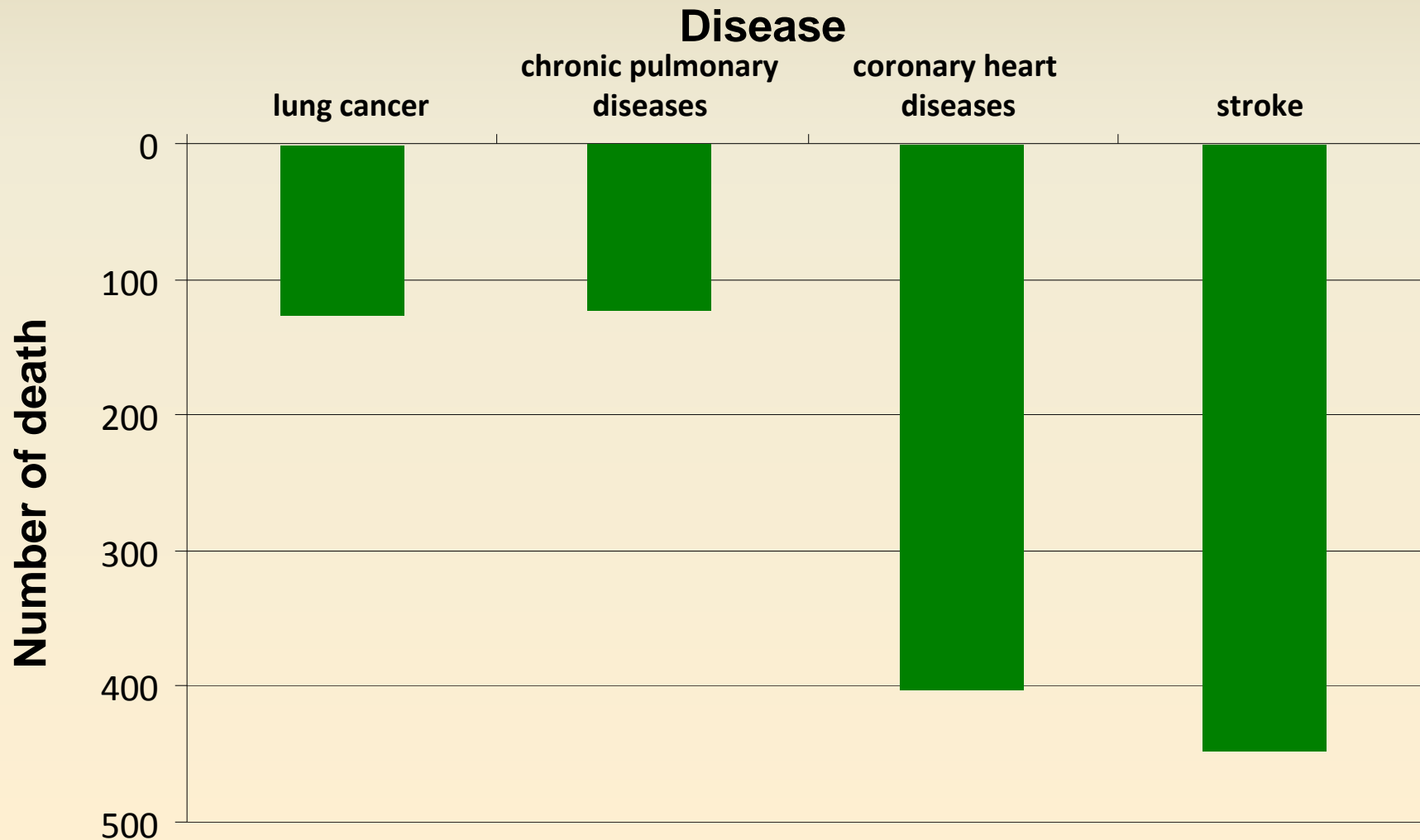
# Attributable death of passive smoking in the Hungarian population



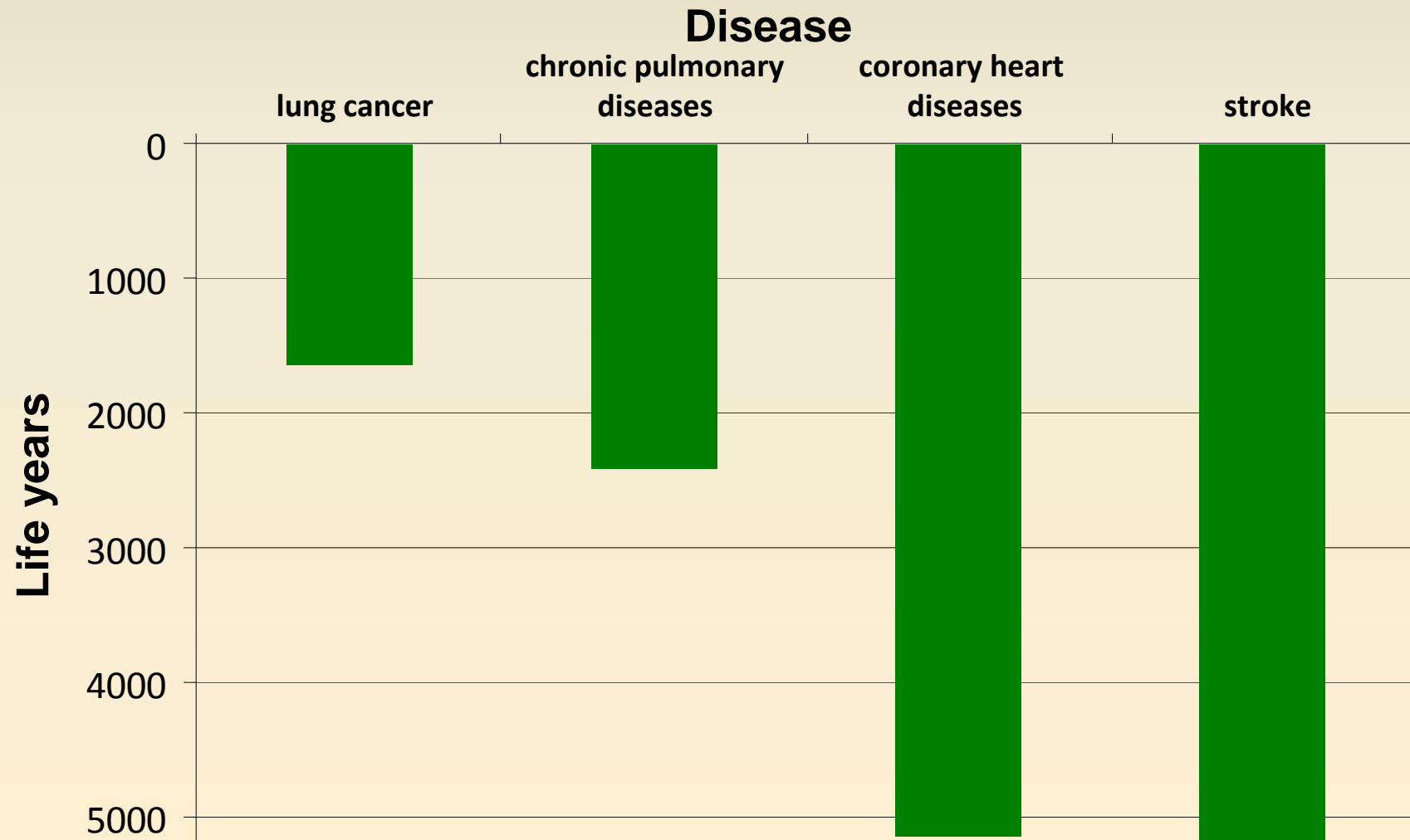
# Disability adjusted life years of passive smoking in the Hungarian population



# Reduction in the number of attributable death of passive smoking in the Hungarian population due to the proposal

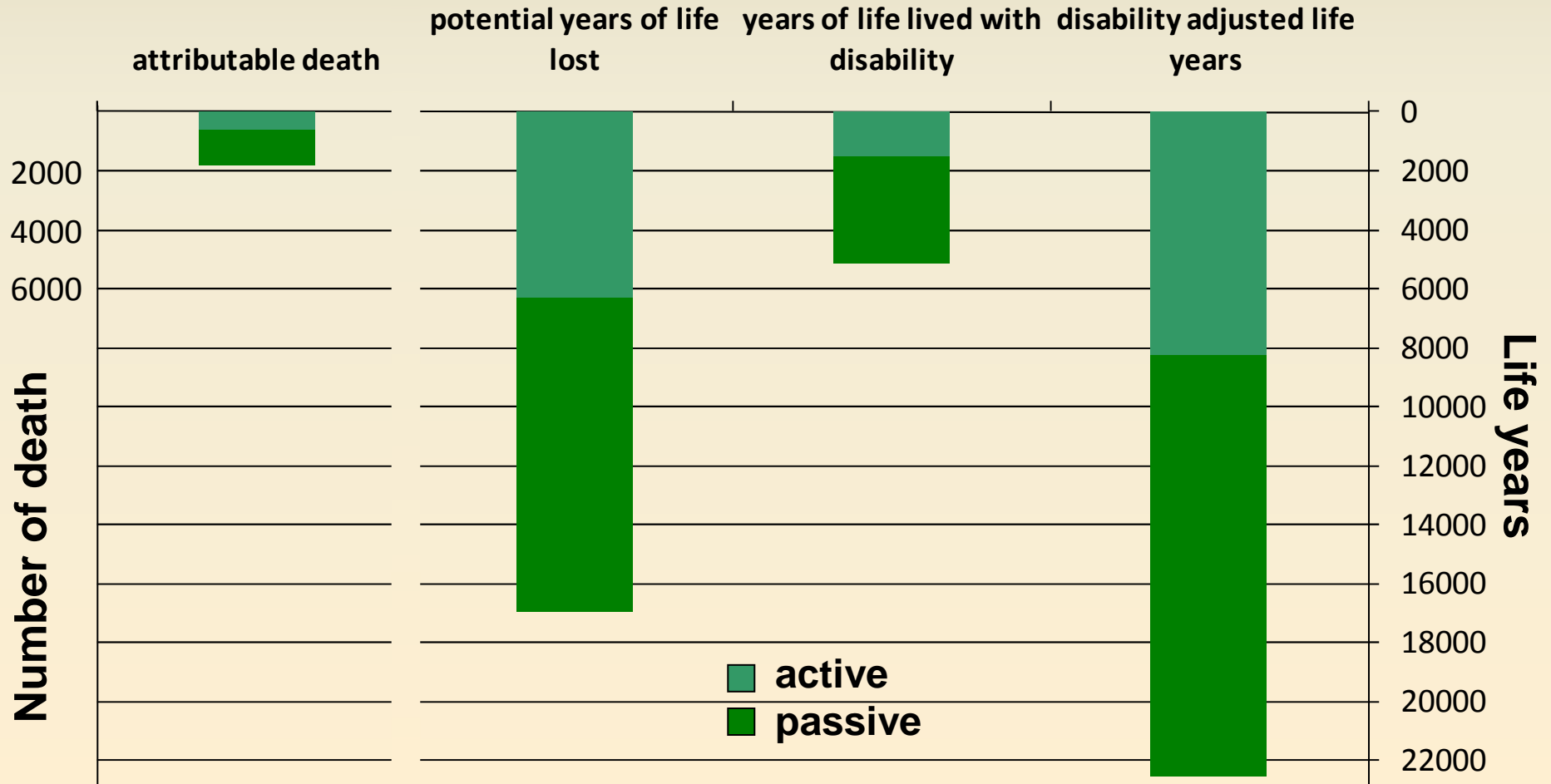


# Reduction in the disability adjusted life years of passive smoking in the Hungarian population due to the proposal



# All quantifiable health benefit of the proposal

## Measure of disease burden



# Discussion

- **The effect of smoking prohibition in closed public places on active and passive smoking could be quantified for the most important health outcomes.**
- **Quantitative assessment was integrated into the scheme of a comprehensive HIA in a structured way.**
- **Major effect is expected on lung cancer, chronic pulmonary diseases, coronary heart diseases and stroke.**
- **The analysis of causal relationships allowing quantitative assessment can conclude that the proposal may save close to 1700 lives and 22 000 disability adjusted life years annually in long term in the Hungarian population of 10 million.**

**Danke schön!**