

How many DALYs are lost due to Arsenic exposure?

Estimating the EBD of dietary exposure to inorganic arsenic for lung, bladder & skin cancer

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Arsenic environmental burden of disease in 2019 for Belgium ~ 72 DALYs

- Arsenic (As) environmental contamination is modeled by anthropogenic activities
- Main exposure route : diet [1;2]
- Inorganic arsenic (iAs) is associated with bladder, lung & skin cancers [3;4]
- Social determinants influence As health impact



Assessing the environmental burden of disease (EBD) of cancers attributable to iAs DALYs stratified by socio-economic status (SES) across Western Europe: application to Belgium

1 Literature review

- State of the art of As exposure & related health outcomes
- EBD approaches & indicators
- How SES is taken into account?

PubMed: Arsenic; Burden of disease, Disability-Adjusted Life Years

Paper from partners

Reference lists of selected publication

22 selected

Final selection : 41

2 Risk assessment

Risk assessment approach:

- Quantification of exposure
- Selection of dose-response function (DRF)
- Attributable incidence (AI) estimation

3 DALY calculation

$$AI = \frac{N_{strata} * Risk}{Life\ expectancy}$$

$$DALY = AI * DALY\ per\ case$$

4 Country-specific data collection

- iAs dietary exposure levels
- Number of individual per SES strata
- DALY per case

Key findings

- Main As EBD assessment metric: DALY
- Exposure stratification by education levels
- DRF (bladder & lung cancers): Jakobsen et al. 2020 study [5] based on FDA 2016 [4]
- DRF (skin cancer) EPA IRIS 1995 [6]



Scan for references

Education level	Mean exposure (µg/kg bw/day)	Total DALYs [95% CI]
Secondary school or lower	0.084	46 [43 - 48]
Higher studies, short-type	0.092	12 [11 - 13]
Higher studies, long-type	0.102	14 [13 - 15]