World Health Organization

THE PUBLIC HEALTH IMPACT OF CHEMICALS: KNOWNS AND UNKNOWNS

Data addendum for 2016

This is an addendum to the WHO publication "The Public Health Impact of Chemicals: Knowns and Unknowns" (WHO, 2016) and presents an update of the main data tables and figures for the year 2016.

Table 1: Overview of the disease burden preventable through sound management and reduction of chemicals in the environment (2016)[a]

Chemicals/ Groups of chemicals	**Disease outcomes considered** (population attributable fraction of DALYs)	**Deaths** (% total deaths)	**DALYs** (% total DALYs)	**Method**
Chemicals in acute poisonings				
Chemicals involved in unintentional acute poisonings (methanol, diethylene glycol, kerosene, pesticides etc.)	Unintentional poisonings (73%)	77,879	4,576,044	Expert survey
Chemicals involved in unintentional occupational poisonings (already included in the above poisonings)	Unintentional poisonings (occupational) (9.8%)	5,766	308,335	CRA
Pesticides involved in self-inflicted injuries	Self-inflicted injuries (20%)	155,488	7,362,493	Limited epidemiological data
Chemicals involved in congenital anomalies	Congenital anomalies (5.0%)	29,544	3,149,020	Expert survey
Single chemicals with mostly longer term effects				
Lead	Cardiovascular diseases (2.5%); chronic kidney diseases (1.7%); idiopathic intellectual disability (30%)	540,043	13,873,553	CRA
Chemicals in occupational exposures (longer term effects)				
Occupational carcinogens (arsenic, asbestos, benzene, beryllium, cadmium, chromium, diesel engine exhaust, formaldehyde, nickel, silica, sulfuric acid, trichloroethylene)[b]	Cancers (2.5%); pneumoconiosis (61%)	323,114	6,438,790	CRA
Occupational particulates (dusts, fumes, gas)	COPD (13%); pneumoconiosis (39%)	424,266	9,377,104	CRA
Total	Considered diseases: poisonings, self-inflicted injuries, congenital anomalies, cardiovascular diseases, chronic kidney diseases, idiopathic intellectual disability, cancers, pneumoconiosis, COPD	1,550,334 (2.7%[c])	44,777,004 (1.7%[c])	

Data sources: CRA: IHME (2018), disease statistics: WHO (2018a and 2018b); "expert survey" and "limited epidemiological data": Prüss-Ustün et al. (2016).
[a] without counting the effect of chemicals in general ambient air pollution, [b] excludes second-hand tobacco smoke, [c] percentage of total deaths and DALYs (all causes) in 2016.
Notes: DALYs: disability-adjusted life years, CRA: comparative risk assessment, COPD: chronic obstructive pulmonary disease.

Figure 1. Total deaths attributable to chemicals by disease (includes risks assessed in Table 1)

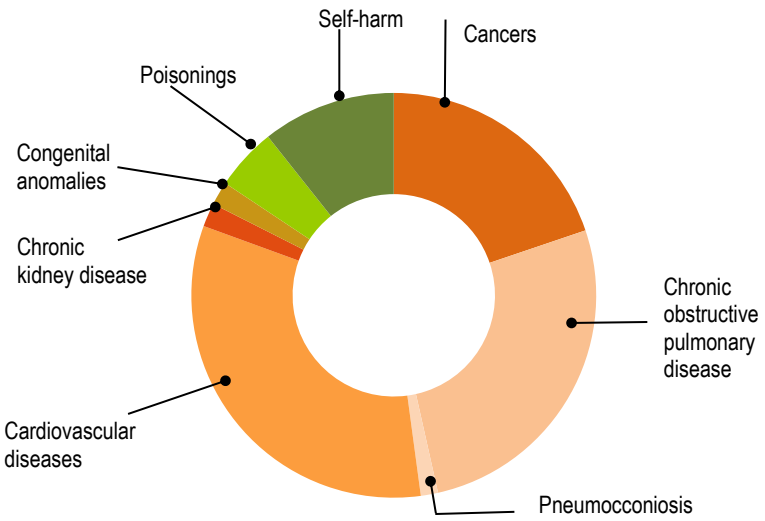


Figure 2. Deaths attributable to chemicals, by sex

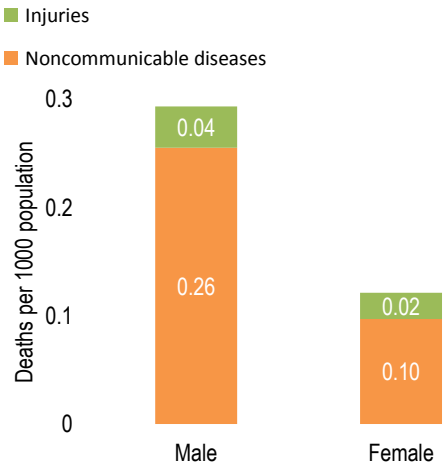
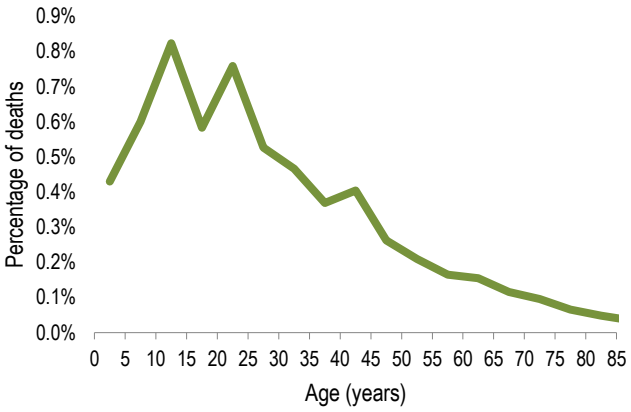


Figure 3. Percentage of global deaths attributable to poisonings by age

Children and young adults are particularly affected by unintentional poisonings.



Notes: Figures 1 and 2 are without counting the effect of chemicals in general ambient air pollution. Figures 1, 2 and 3 replace and update Figures 3, 5 and 4 in the original report, respectively.

References

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