World Health Organization

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The World Health Organization (WHO) presents its compliments to Member States and has the honour to consult the Member States on joint estimates of WHO and the International Labour Organization (ILO) of the work-related burden of disease and injury (WHO/ILO Joint Estimates).

In the spirit of the Sustainable Development Goals,[1] WHO and ILO have agreed to produce the WHO/ILO Joint Estimates. The organizations have systematically selected pairs of occupational risk factors and health outcomes. For each pair, the existing evidence has been systematically reviewed and synthesized. Databases have been established on exposure to the risk factors and their health effects. For pairs with the required evidence and data, estimates have ... been produced. The attached guidance note details the data sources and methods used.

Prior to publication planned for the last quarter of 2020, WHO would like to share the WHO/ILO Joint Estimates that were developed and compiled globally for the number of deaths and disability-adjusted life years for 39 pairs of occupational risk factors and health outcomes (see attached guidance note).

Member States are invited to provide feedback to the finalization of the WHO/ILO Joint Estimates through the focal points nominated following C.L.8.2020.

Additional country data or requests for information on these estimates can be sent to Dr Frank Pega, pegaf@who.int, Environment, Climate Change and Health Department no later than **7 September 2020**.

The World Health Organization avails itself of this opportunity to renew to Member States the assurance of its highest consideration.

GENEVA, 31 July 2020

[1] 70th UNGA (2015). Transforming our world: the 2030 Agenda for Sustainable Development. New York, NY: UN.

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Guidance note

To facilitate country consultation on WHO/ILO Joint Estimates of the work-related burden of disease and injury for 39 pairs of occupational risk factors and health outcomes, for the years 2000, 2010 and 2016.

Background

The World Health Organization (WHO) and the International Labour Organization (ILO) have developed joint estimates of the work-related burden of disease and injury (WHO/ILO Joint Estimates).

Objectives

To estimate the burdens of disease for 39 pairs of occupational risk factors and health outcomes (Table 1).

Table 1: List of pairs of occupational risk factors and health outcomes

	Risk factor	Health outcome
1	Occupational exposure to asbestos	Larynx cancer
2		Tracheal, bronchus, and lung cancer
3		Ovarian cancer
4		Mesothelioma
5	Occupational exposure to arsenic	Tracheal, bronchus, and lung cancer
6	Occupational exposure to benzene	Leukaemia
7	Occupational exposure to beryllium	Tracheal, bronchus, and lung cancer
8	Occupational exposure to cadmium	Tracheal, bronchus, and lung cancer
9	Occupational exposure to chromium	Tracheal, bronchus, and lung cancer
10	Occupational exposure to diesel engine exhaust	Tracheal, bronchus, and lung cancer
11	Occupational exposure to formaldehyde	Nasopharynx cancer
12		Leukaemia
13	Occupational exposure to nickel	Tracheal, bronchus, and lung cancer
14	Occupational exposure to polycyclic aromatic hydrocarbons	Tracheal, bronchus, and lung cancer
15	Occupational exposure to silica	Tracheal, bronchus, and lung cancer
16	Occupational exposure to sulfuric acid	Larynx cancer
17	Occupational exposure to trichloroethylene	Kidney cancer
18	Occupational asthmagens	Asthma
19	Occupational particulate matter, gases, and fumes	Chronic obstructive pulmonary disease
20	Occupational noise	Age-related and other hearing loss
21	Occupational ergonomic factors	Low back pain
22	Occupational injuries	Pedestrian road injuries
23		Cyclist road injuries
24		Motorcyclist road injuries
25		Motor vehicle road injuries
26		Other road injuries
27		Other transport injuries
28		Falls
29		Drowning
30		Fire, heat, and hot substances
31		Poisoning by carbon monoxide
32		Poisoning by other means
33		Unintentional firearm injuries
34		Other exposure to mechanical forces
35		Venomous animal contact
36		Non-venomous animal contact
37		Pulmonary aspiration and foreign body in airway
38		Foreign body in other body part
39		Other unintentional injuries

Objectives of the country consultation

This country consultation is a process through which WHO invites feedback from countries on its estimates. It is important that relevant authorities consult the data files to provide effective feedback.

Results

Feedback is invited on the WHO/ILO Joint Estimates of the numbers of deaths and disability-adjusted life years (DALYs) attributable to the 39 pairs (Table 1). These estimates are produced for three years (2000, 2010 and 2016) and disaggregated by sex (3 categories: both female and male, female, and male) and age group (13 categories: ≥15, 15–19, … 90–94, and ≥95 years).

Data sources

The estimates were produced using the two sets of input data described below.

Input Data 1: Population-attributable fractions

The contribution of a risk factor to mortality or disease is expressed as the fraction of death or disease. The population attributable fraction (PAFs) is the proportional reduction in death or disease that would occur if exposure to a risk factor were reduced to counterfactual minimum risk exposure level. For the 39 pairs (Table 1), the PAFs or the data to calculate these were sourced from the Global Burden of Disease Study 2017 (G.B.D. Risk Factor Collaborators 2018; http://ghdx.healthdata.org/).

Input Data 2: Estimates of total number of deaths and DALYs

Estimates of the total numbers of deaths and DALYs for the causes of the 39 pairs (Table 1) were sourced from the WHO Global Health Estimates (WHO 2018).

Methods

The Comparative Risk Assessment framework (Ezzati 2002) was used to estimate the burdens of disease attributable to exposure to the occupational risk factors. For each of the 39 pairs (Table 1) and each population cohort defined by sex and age group, the PAFs (Input Data 1) were multiplied with the total disease burden envelope for the cause (Input Data 2). This gave the attributable disease burdens.

References

Ezzati et al (2002). Lancet;360(9343):1347-60.

G.B.D. Risk Factor Collaborators (2018). Lancet;392(10159):1923-94.

WHO (2018). Global Health Estimates 2016. Geneva, WHO
https://www.who.int/gho/mortality_burden_disease/en/