World Health Organization

International Labour Organization

GLOBAL MONITORING REPORT

WHO/ILO Joint Estimates of the Work-related Burden of Disease and Injury, 2000–2016

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FOREWORD FROM THE WHO DIRECTOR-GENERAL AND THE ILO DIRECTOR-GENERAL

Nobody should get sick or die from doing their job. And yet every year, 1.9 million people die from exposure to risk factors in the workplace. The 2030 Sustainable Development Goals (SDGs) aim "to ensure healthy lives and promote well-being" and "decent work" for all people, whatever their economic or social status.

Achieving these goals requires the comprehensive, accurate and transparent monitoring of workers' health and safety. Quantifying the impact of each occupational risk factor is essential for mitigating it. That's why the World Health Organization (WHO) and the International Labour Organization (ILO) have established the WHO/ILO Joint Estimates of the Work-related Burden of Disease and Injury (WHO/ILO Joint Estimates).

In 2016, we agreed to produce a single unified methodology and a single set of joint estimates on the work-related burden of disease and injury. In 2019, we further strengthened our partnership by signing a Collaboration Agreement to produce these estimates regularly.

This report is the first fruits of that collaboration. It details the impact on human health of each occupational risk factor, and offers concrete policies and actions to improve occupational and workers' health and safety. These estimates provide a valuable basis for identifying, prioritizing, planning, costing, implementing and evaluating effective policies and actions to prevent the work-related burden of disease and injury, at country, regional and global levels, across sectors.

This report is a snapshot of a wider problem. The challenge for all of us now is to act on what it is showing us.

Dr Tedros Adhanom Ghebreyesus
Director-General
World Health Organization

Guy Ryder
Director-General
International Labour Organization

17 September 2021

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This report presents the World Health Organization/International Labour Organization Joint Estimates of the Work-related Burden of Disease and Injury (WHO/ILO Joint Estimates).

The WHO/ILO Joint Estimates were produced by Frank Pega (WHO), Natalie Momen (WHO), Kai Streicher (WHO) and Bálint Náfrádi (ILO).

Frank Pega and Natalie Momen were the lead writers of this report; the drafting team also included Yuka Ujita (ILO), Bálint Náfrádi and Halim Hamzaoui (ILO). Rola Al-Elmam (WHO), Richard Brown (WHO), Ahmadreza Hosseinpoor (WHO), Ivan Ivanov (WHO), Kathleen Krupinski (WHO), Franklin Muchiri (ILO), Ann Olsson (International Agency for Research on Cancer), Lesley Onyon (WHO) and Annette Prüss-Üstün (WHO) also provided valuable technical inputs to this report.

Frank Pega coordinated the development and production of the WHO/ILO Joint Estimates and the report; the ILO focal point was Yuka Ujita and then Halim Hamzaoui. Maria Neira (WHO) and Vera Paquete-Perdigão (ILO) provided overall guidance.

The National Institute of Occupational Health and Poison Control, Chinese Center for Disease Control and Prevention shared survey data on exposure to long working hours for the People's Republic of China. Eurostat produced and shared the transition probabilities for exposure to long working hours for 27 countries in the European Region.

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The contents of this publication are solely the responsibility of WHO and the ILO, and they do not necessarily represent the official views of any of the WHO or ILO donors mentioned above.

LIST OF ABBREVIATIONS

DALY	disability-adjusted life year
GATHER	Guidelines for accurate and transparent health estimates reporting
IARC	International Agency for Research on Cancer
ILO	International Labour Organization
SDG	Sustainable Development Goal
UN	United Nations
UR	uncertainty range
WHO	World Health Organization

EXECUTIVE SUMMARY

To achieve the United Nations 2030 Agenda of Sustainable Development Goals (SDGs), specifically SDG3 and SDG8, exposure to occupational risk factors and the attributable health loss must be reduced or even eliminated; this requires the monitoring of such exposures and health loss, at country, regional and global levels. For this purpose, the World Health Organization (WHO) and the International Labour Organization (ILO) have produced their first Joint Estimates of the Work-related Burden of Disease and Injury (WHO/ILO Joint Estimates). This Global Monitoring Report describes the objectives, data sources and methods of these new interagency estimates, and reports the WHO/ILO Joint Estimates generated in this estimation cycle.

The WHO/ILO Joint Estimates have been produced within the framework of the global Comparative Risk Assessment, in which exposure to a specific occupational risk factor is linked to the specific attributable burden of one specific health outcome (i.e. a defined disease or injury). For 39 established pairs of occupational risk factor and health outcome, the estimates are produced using population attributable fractions calculated from recent burden of disease estimates. For two additional pairs, population attributable fractions are calculated from new databases of exposure to occupational risk factors and risk ratios produced in WHO/ILO systematic reviews and meta-analyses. The estimation methods used apply population attributable fractions for specific occupational risk factors to total disease burden envelopes to provide estimates of the burden of disease attributable to the risk factors. In this estimation cycle, WHO and the ILO have produced estimates for the 41 selected pairs of occupational risk factor and health outcome. All estimates are available for the years 2000, 2010 and 2016, reported at country, regional and global levels, and are fully disaggregated by sex and age group.

Globally in 2016, a total of 1.88 (95% uncertainty range (UR): 1.84–1.92) million deaths and 89.72 (95% UR: 88.61–90.83) million disability-adjusted life years (DALYs) were estimated to be attributable to the 41 pairs of occupational risk factor and health outcome. Diseases accounted for 80.7% (1.52 million; 95% UR: 1.47–1.56 million) of the deaths and 70.5% (63.28 million; 95% UR: 62.17–64.39 million) of the DALYs, and injuries accounted for 19.3% (0.36 million; 95% UR: 0.36–0.37 million) of the deaths and 29.5% (26.44 million: 95% UR: 26.42–26.46 million) of the DALYs. All covered diseases are non-communicable diseases. The occupational risk factor with the largest number of attributable deaths was exposure to long working hours (≥ 55 hours per week) (744 924 deaths; 95% UR: 705 519–784 329), followed by occupational particulate matter, gases and fumes (450 381 deaths; 95% UR: 430 248–470 514) and occupational injuries (363 283 deaths; 95% UR: 358 251–368 315). The health outcome with the largest work-related burden of deaths was chronic obstructive pulmonary disease (450 381 deaths; 95% UR: 430 248–470 514), followed by stroke (398 306 deaths; 95% UR: 369 693–426 919) and ischaemic heart disease (346 618 deaths; 95% UR: 319 524–373 712). A disproportionately large work-related burden of disease is observed in the WHO African Region, South-East Asia Region and the Western Pacific Region, males and older age groups.

This first set of WHO/ILO Joint Estimates can be used for global monitoring of exposure to occupational risk factors and work-related burden of disease and injury, and to identify, plan, cost, implement and evaluate actions to effectively prevent exposure to occupational risk factors and their associated disease and injury burdens.

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1. INTRODUCTION

The World Health Organization (WHO) and the International Labour Organization (ILO) have a long history of productive interagency collaboration. When WHO was founded in 1948, its *Basic documents* included an agreement to collaborate, including by exchanging data and evidence, with the ILO *(1)*. However, until very recently WHO and the ILO have produced separate estimates on work-related burden of disease, with the use of different methodologies yielding different results. In this report, as in the broader burden of disease framework, the term "burden of disease" refers to the combined burdens of three types of health outcomes, namely communicable diseases, non-communicable disease and injuries *(2, 3)*. Member States have asked that the two United Nations (UN) Specialized Agencies harmonize their estimates, and UN reform has compelled UN organizations to build synergies as One UN. The Sustainable Development Goals (SDGs) and the 2030 Agenda *(4)* call for partnerships for development and improved policy coherence. To contribute towards achievement of the SDGs, WHO and the ILO agreed in 2016 to develop a joint estimation methodology and produce the WHO/ILO Joint Estimates of the Work-related Burden of Disease and Injury (WHO/ILO Joint Estimates): the most comprehensive set of official estimates of work-related burden of disease produced to date.

WHO and the ILO were able to use their existing and already-shared methodologies for many established pairs of occupational risk factor and health outcome. However, several other pairs of occupational risk factor and health outcome were considered either in need of a new evidence review or else likely to contribute appreciably to the burden of disease but had not been included in either WHO or ILO estimates; sixteen of these pairs of occupational risk factor and health outcome were prioritized in this cycle of the WHO/ILO Joint Estimates. For these additional pairs of interest, WHO and the ILO established protocols for, and conducted a series of, systematic reviews and meta-analyses of the evidence base *(5–22)*. These evidence syntheses were carried out with the support of experts from government departments in 11 countries (often ministries of health and labour) and over 220 individual experts from 35 countries, covering all six WHO regions (Africa, Americas, South-East Asia, Europe, Eastern Mediterranean and Western Pacific) and all five ILO regions (Africa, Americas, Arab States, Asia and the Pacific, and Europe and Central Asia).

All WHO/ILO Joint Estimates are produced according to the strict statistical rules and established regulations of WHO and the ILO. The data sources and methods used in obtaining these estimates are reported according to the *Guidelines for accurate and transparent health estimates reporting* (GATHER) *(23)*.

In this report we aim to present the WHO/ILO Joint Estimates in a user-friendly format to inform decision-makers, policymakers and practitioners within and beyond occupational and workers' health and safety, at the workplace, enterprise, national, regional and global levels. We first provide a brief summary of the pairs of occupational risk factor and health outcome considered – 39 established pairs, and the two recently added pairs of exposure to long working hours and the health outcomes of ischaemic heart disease and stroke – and the data sources for these pairs in Section 2. We then briefly describe the methods used to produce the WHO/ILO Joint Estimates in Section 3; a detailed Technical Report can be found elsewhere *(24)*. We report the WHO/ILO Joint Estimates for 41 pairs of occupational risk factor and health outcome in Section 4. Our discussion in Section 5 considers the strengths and limitations of the WHO/ILO Joint Estimates.

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2. OCCUPATIONAL RISK FACTOR AND HEALTH OUTCOME PAIRS

The WHO/ILO Joint Estimates have been produced for 41 pairs of occupational risk factor and health outcome: 39 previously established and two recently added.

2.1. Established pairs

2.1.1. Selection

Thirty-nine established pairs of occupational risk factor and health outcome (Table 1) were selected for inclusion in the WHO/ILO Joint Estimates, for which WHO and the ILO had previously already used the same data sources and estimation methods *(2, 3)*. All these pairs have been included in the global Comparative Risk Assessment for some time *(2, 3)*. The Comparative Risk Assessment is a systematic evaluation of the changes in population health that result from modifying the population distribution of exposure to a risk factor or a group of risk factors (Ezzati et al. *(2, 3)*).

While there are established methods for estimating the burdens of silicosis, asbestosis, coal worker's pneumoconiosis and unspecified pneumoconiosis attributable to occupational exposure to dusts and fibres, WHO and the ILO are currently reviewing these methods and the available bodies of evidence *(9)*; these pairs were therefore not included in this estimation cycle or this Global Monitoring Report.

2.1.2. Data sources

For the 39 established pairs of occupational risk factor and health outcome (Table 1), the burden of disease attributable to occupational risk factors was estimated using the Comparative Risk Assessment framework *(2, 3)*. We sourced recent burden of disease estimates available from the Global Burden of Disease Study *(25)*, now through the Institute of Health Metrics and Evaluation *(29)*, from which we derived population attributable fractions (Annex 1). Population attributable fractions quantify the proportion of deaths or disability-adjusted life years (DALYs) lost from a particular health outcome that is attributable to a specific risk factor, that is, the reduction in numbers of deaths or DALYs from this disease or injury that would be expected to occur if exposure to that risk factor was removed or present at a reduced level.

2.2. Recently added pairs

2.2.1. Selection

Through the application of pre-specified criteria, potential additional pairs of occupational risk factor and health outcome were prioritized. Based on scoping reviews of the literature, WHO and the ILO (supported by individual experts) selected an additional 16 pairs of occupational risk factor and health outcome that may contribute substantially to the work-related burden of disease for systematic review and meta-analysis. Of these, two pairs proceeded to burden of disease estimation in this cycle and are presented in this report: exposure to long working hours (defined as working for ≥ 55 hours per week) and the health outcomes of ischaemic heart disease and stroke. A detailed Technical Report can be found elsewhere *(24)*.

2.2.2. Data sources

(a) Systematic reviews and meta-analyses

For the WHO/ILO Joint Estimates, 15 systematic reviews and meta-analyses were conducted to gather evidence on the additional pairs of occupational risk factor and health outcome (for list see table 1 in Pega et al. *(30)*). Evidence was reviewed and synthesized on both the prevalence of exposure

TABLE 1
ESTABLISHED PAIRS OF OCCUPATIONAL RISK FACTOR AND HEALTH OUTCOME

	Risk factor[a]	Health outcome[b]
1	Occupational exposure to asbestos	Trachea, bronchus and lung cancers
2	Occupational exposure to asbestos	Ovary cancer
3	Occupational exposure to asbestos	Larynx cancer
4	Occupational exposure to asbestos	Mesothelioma
5	Occupational exposure to arsenic	Trachea, bronchus and lung cancers
6	Occupational exposure to benzene	Leukaemia
7	Occupational exposure to beryllium	Trachea, bronchus and lung cancers
8	Occupational exposure to cadmium	Trachea, bronchus and lung cancers
9	Occupational exposure to chromium	Trachea, bronchus and lung cancers
10	Occupational exposure to diesel engine exhaust	Trachea, bronchus and lung cancers
11	Occupational exposure to formaldehyde	Nasopharynx cancer
12	Occupational exposure to formaldehyde	Leukaemia
13	Occupational exposure to nickel	Trachea, bronchus and lung cancers
14	Occupational exposure to polycyclic aromatic hydrocarbons	Trachea, bronchus and lung cancers
15	Occupational exposure to silica	Trachea, bronchus and lung cancers
16	Occupational exposure to sulphuric 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	Other hearing loss
21	Occupational injuries[c]	Pedestrian road injuries
22	Occupational injuries[c]	Cyclist road injuries
23	Occupational injuries[c]	Motorcyclist road injuries
24	Occupational injuries[c]	Motor vehicle road injuries
25	Occupational injuries[c]	Other road injuries
26	Occupational injuries[c]	Other transport injuries
27	Occupational injuries[c]	Poisoning by carbon monoxide
28	Occupational injuries[c]	Poisoning by other means
29	Occupational injuries[c]	Falls
30	Occupational injuries[c]	Fire, heat and hot substances
31	Occupational injuries[c]	Drowning
32	Occupational injuries[c]	Unintentional firearm injuries
33	Occupational injuries[c]	Other exposure to mechanical forces
34	Occupational injuries[c]	Pulmonary aspiration and foreign body in airway
35	Occupational injuries[c]	Foreign body in other body part
36	Occupational injuries[c]	Non-venomous animal contact
37	Occupational injuries[c]	Venomous animal contact
38	Occupational injuries[c]	Other unintentional injuries
39	Occupational ergonomic factors	Back and neck pain

[a] Defined as per the Global Burden of Disease Study classification *(25)*.
[b] Defined as per the burden of disease classification of the WHO Global Health Estimates *(26)* with the exception of injuries, which are defined as per Global Burden of Disease Study classification *(25)*.
[c] Throughout this report the term "Occupational injuries" is used as defined by Ezzati et al. *(2, 3)* to represent an occupational risk factor within the framework of the global Comparative Risk Assessment. This definition differs from that adopted by the 1982 Thirteenth International Conference of Labour Statisticians *(27)*, and was revised by the 1998 Sixteenth International Conference of Labour Statisticians *(28)* to mean "any personal injury, disease or death resulting from an occupational accident".

to occupational risk factors (five systematic reviews), and on the effect of exposure to these risk factors on health outcomes (10 systematic reviews). A series of peer-reviewed articles describing the protocols for and results from the systematic reviews and meta-analyses *(5–22)*, and new methods for conducting these *(31)*, have been published in an international academic journal *(30)*. WHO and the ILO determined the pairs for which the evidence base was of sufficient quality and strength to proceed to burden of disease estimates.

(b) WHO/ILO databases

For some of the recently added pairs of occupational risk factor and health outcome, new WHO/ILO databases were developed from data shared by countries, areas and territories with one or more of WHO, the ILO and Eurostat. These interagency databases were established specifically for the purpose of producing the WHO/ILO Joint Estimates. For the occupational risk factor of exposure to long working hours, the WHO/ILO databases used results from 2324 surveys (mostly Labour Force Surveys) from 154 countries, areas and territories, as well as 1742 quarterly datasets of Labour Force Surveys conducted in 46 countries. A detailed description of all databases used for estimation is provided elsewhere *(32)*.

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3. ESTIMATION METHODS

3.1. Established pairs

We applied the population attributable fractions calculated from recent burden of disease estimates *(25)* to the WHO Global Health Estimates, which provide the total disease envelopes for the years 2000, 2010 and 2016 *(26)*, to obtain estimates of the numbers of deaths and DALYs for each health outcome attributable to its respective occupational risk factor.

3.2. Recently added pairs

3.2.1. Exposure estimates

We used an established multilevel model to predict the geographical and temporal prevalence of exposure to long working hours *(33)*, as applied by WHO in its estimates for environmental risk factor exposures *(34, 35)*. The multilevel model has also been used by WHO in the production of SDG indicators 3.9.1 (mortality rate attributed to household and ambient air pollution) and 3.9.2 (mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene), as endorsed by the UN Statistical Commission. Prevalence of exposure to long working hours was modelled based on data from direct exposure measurements. An exposure window was agreed upon based on advice from a WHO/ILO Technical Advisory Group, and the annual prevalence of exposure to long working hours for each year within the exposure window was used in exposure modelling. The methods used to estimate exposure to long working hours are described in detail elsewhere *(32)*.

3.2.2. Burden of disease estimates

As for the established risk factors, the burden of disease attributable to exposure to long working hours was also estimated within the Comparative Risk Assessment framework *(2, 3)*. For the two recently added pairs of long working hours and the health outcomes of ischaemic heart disease and stroke, population attributable fractions were calculated using (i) the prevalence estimates produced by WHO and the ILO, and (ii) the pooled risk ratios obtained from the systematic reviews and meta-analyses conducted by WHO and the ILO (with the support of working groups of individual experts). These population attributable fractions were then applied to the total disease burden envelopes for the health outcome from the WHO Global Health Estimates for the years 2000, 2010 and 2016 *(26)*, yielding the number of deaths and DALYs from each health outcome attributable to exposure to long working hours (Pega et al. *(32)*).

3.3. Inequalities

For describing inequalities in the work-related burden of disease between regions, sexes and age groups, we used the number of deaths or DALYs per 100 000 population (i.e. death or DALY rate) for all regions, both sexes and for people of working age (≥ 15 years) as the reference. For specific regions, sexes or age groups, we calculated (i) the rate difference: the rate for a particular group minus the reference rate (as an absolute inequality measure); and (ii) the rate ratio: the rate for a particular group divided by the reference rate (as a relative inequality measure) *(36)*.

3.4. Uncertainty

The WHO/ILO Joint Estimates, as for any estimates of this kind, are subject to uncertainty. All estimates of exposure to occupational risk factors and of burden of disease were produced with their 95% uncertainty ranges (URs) at the 2.5% and 97.5% quantiles. For this purpose, uncertainty was propagated across estimation models (Pega et al. *(32)*). This report presents the 95% uncertainty ranges for key estimates in the main text; however, 95% uncertainty ranges are available for all estimates in the online estimates repository (available at https://www.who.int/teams/environment-climate-change-and-health/monitoring/who-ilo-joint-estimates).

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4. RESULTS

4.1. Overview of estimates for all pairs

For the 41 pairs of occupational risk factor and health outcome for which estimates are available, we present estimates of the numbers of attributable deaths in Fig. 1 and estimates of the number of attributable DALYs in Fig. 2. Estimates for each estimation year (2000, 2010 and 2016), along with rates, are provided in Annex 2. In the main text of this report, to aid readability we generally report numbers of deaths as estimated, but numbers of DALYs in millions ($x10^6$) with either two decimal places or (for DALYs < 0.01 million) with one significant figure. Percentage increases/decreases in DALYs are calculated from the higher-precision data in Annex 2.

FIGURE 1
TOTAL NUMBER OF ATTRIBUTABLE DEATHS, BY OCCUPATIONAL RISK FACTOR, 183 COUNTRIES, FOR THE YEAR 2016

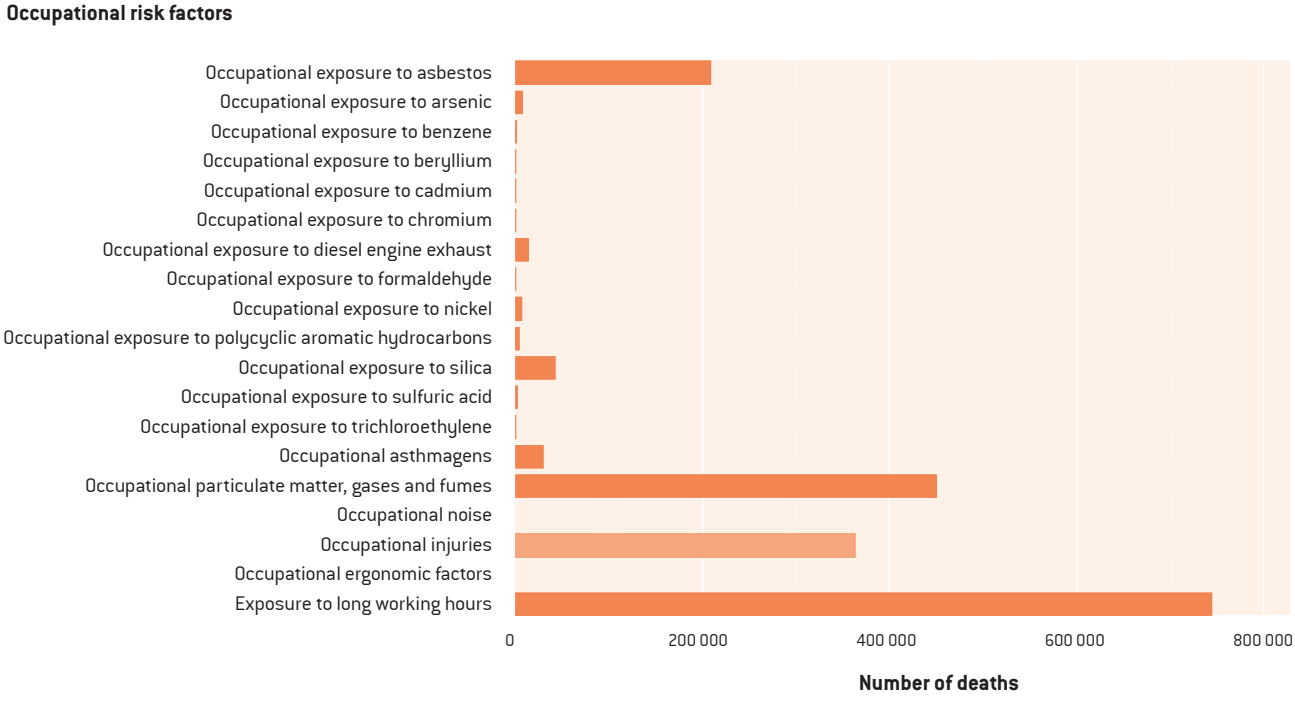
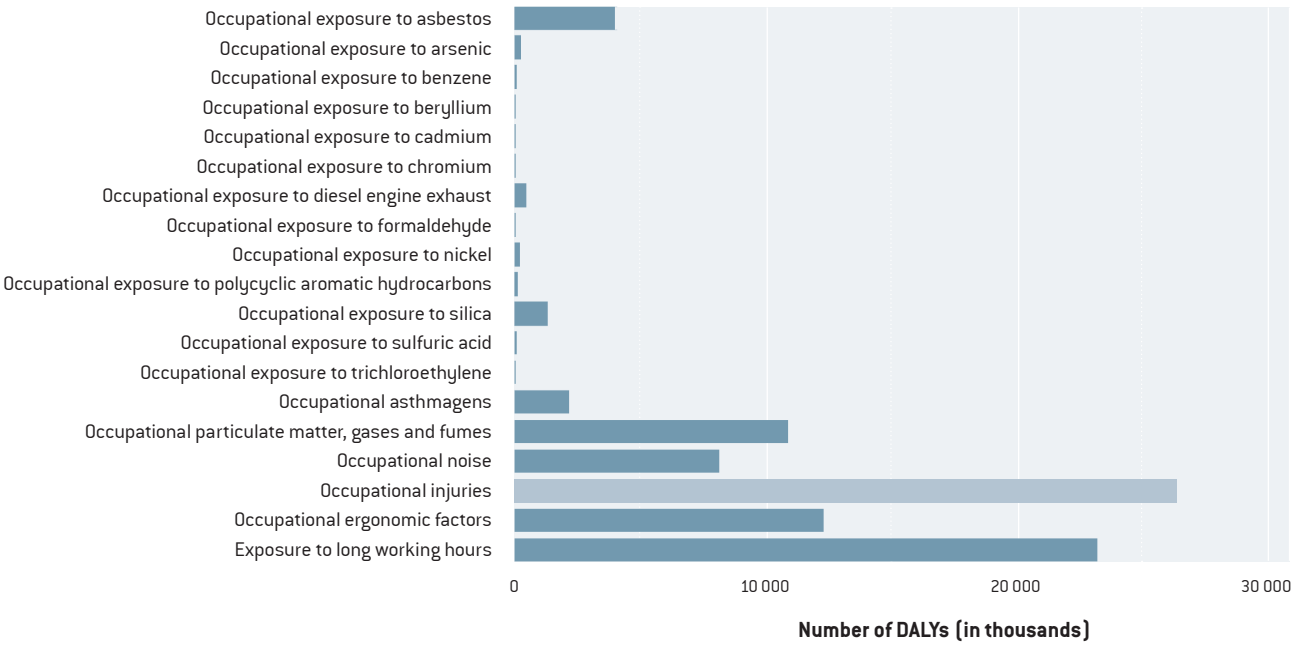


FIGURE 2
TOTAL NUMBER OF ATTRIBUTABLE DALYS, BY OCCUPATIONAL RISK FACTOR, 183 COUNTRIES, FOR THE YEAR 2016



In terms of the estimated numbers of deaths globally, the occupational risk factor with the largest number of attributable deaths in 2016 was exposure to long working hours (744 924; 39.6%), followed by occupational exposure to particulate matter, gases and fumes (450 381; 24.0%) and occupational injuries (363 283; 19.3%) (Fig. 1; Annex 2). Occupational injuries was the risk factor responsible for the largest number of DALYs lost in 2016 globally (26.44 million; 29.5%), followed by exposure to long working hours (23.26 million; 25.9%) and occupational ergonomic factors (12.27 million; 13.7%) (Fig. 2; Annex 2).

The health outcome with the largest work-related burden of deaths was chronic obstructive pulmonary disease (450 381; 24.0%), followed by stroke (398 306; 21.2%) and ischaemic heart disease (346 618; 18.4%) (Fig. 3). Stroke was the leading health outcome for work-related DALYs (12.60 million; 14.0%), followed by back and neck pain (12.27 million; 13.7%) and chronic obstructive pulmonary disease (10.86 million; 12.1%) (Fig. 4).

FIGURE 3
TOTAL NUMBER OF ATTRIBUTABLE DEATHS, BY HEALTH OUTCOME, 183 COUNTRIES, FOR THE YEAR 2016

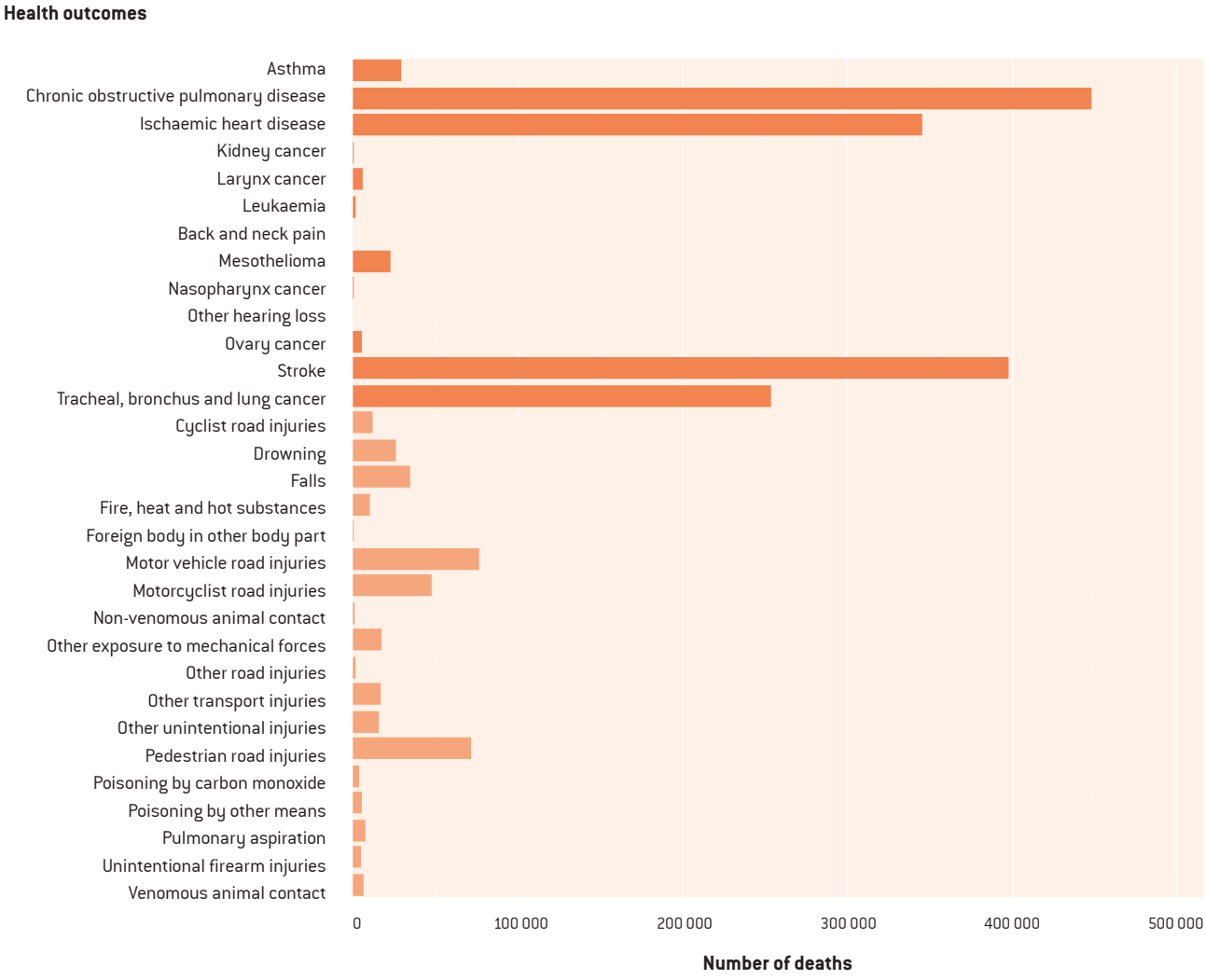


FIGURE 4
TOTAL NUMBER OF ATTRIBUTABLE DALYS, BY HEALTH OUTCOME, 183 COUNTRIES, FOR THE YEAR 2016

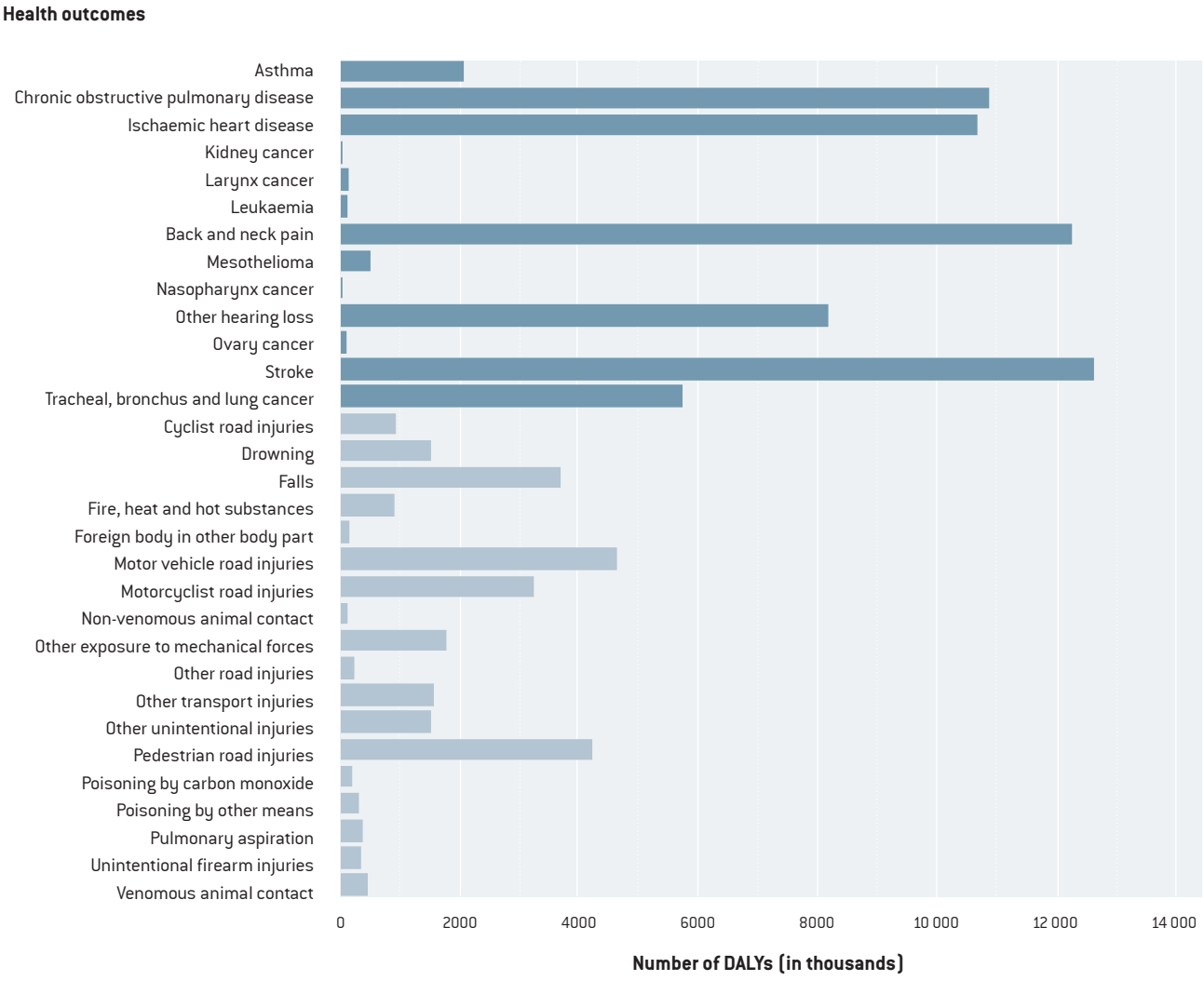


Fig. 5 and Fig. 6 depict the numbers of deaths and DALYs, respectively, corresponding to each pair of occupational risk factor and health outcome, in order of magnitude of burden. Fig. 7 depicts the percentage contribution of each of the 19 occupational risk factors considered here to the total numbers of work-related deaths (inner circle) and DALYs (outer circle).

The WHO/ILO Joint Estimates are available disaggregated by sex and age group, and at global, region and country levels, from dedicated websites hosted by WHO (https://www.who.int/teams/environment-climate-change-and-health/monitoring/who-ilo-joint-estimates) and the ILO (www.ilo.org/global/topics/safety-and-health-at-work/programmes-projects/WCMS_674797/lang--en/index.htm).

FIGURE 5

TOTAL NUMBER OF ATTRIBUTABLE DEATHS, BY PAIR OF OCCUPATIONAL RISK FACTOR AND HEALTH OUTCOME, 183 COUNTRIES, FOR THE YEAR 2016

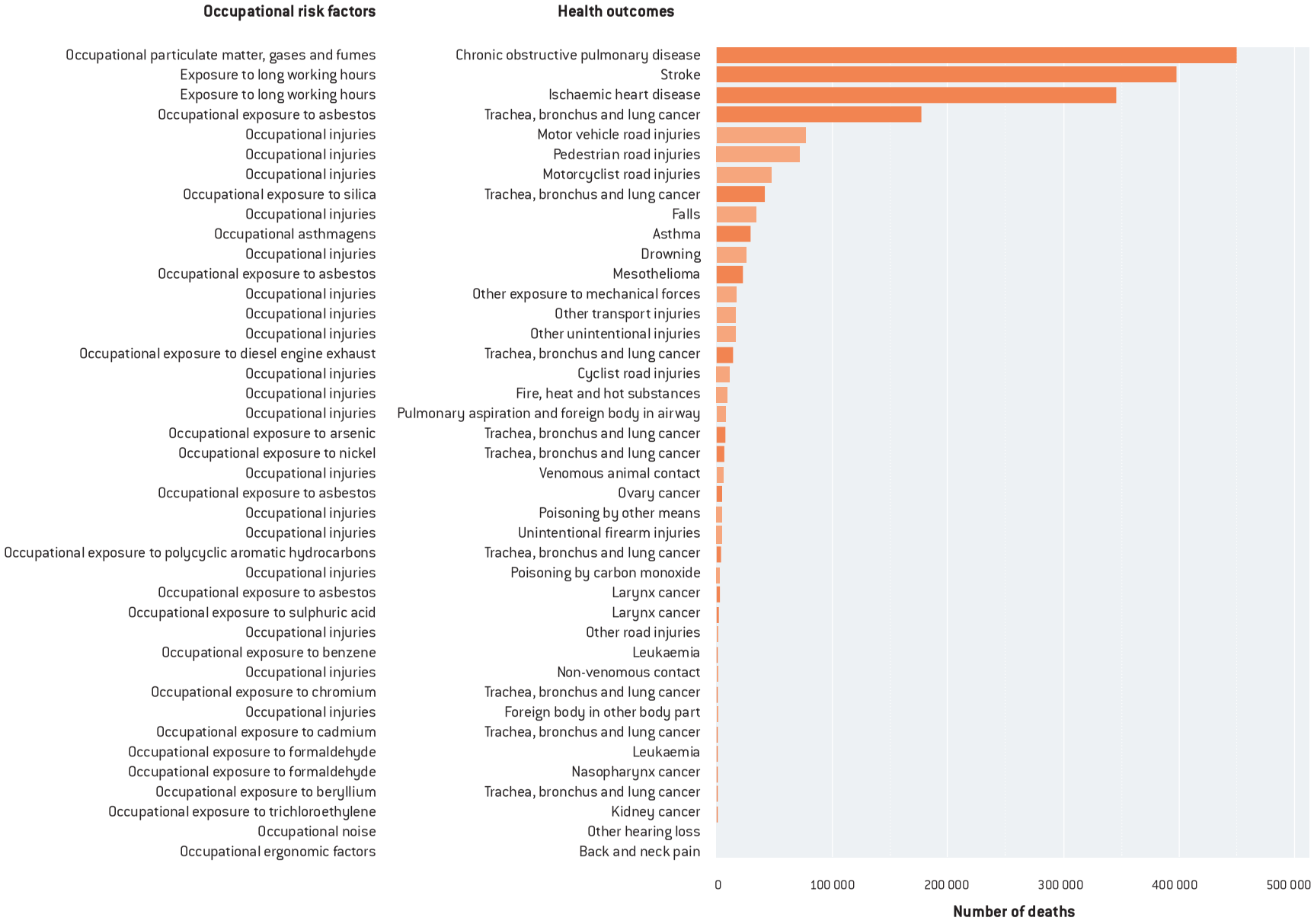


FIGURE 6
TOTAL NUMBER OF ATTRIBUTABLE DALYS, BY PAIR OF OCCUPATIONAL RISK FACTOR AND HEALTH OUTCOME, 183 COUNTRIES, FOR THE YEAR 2016

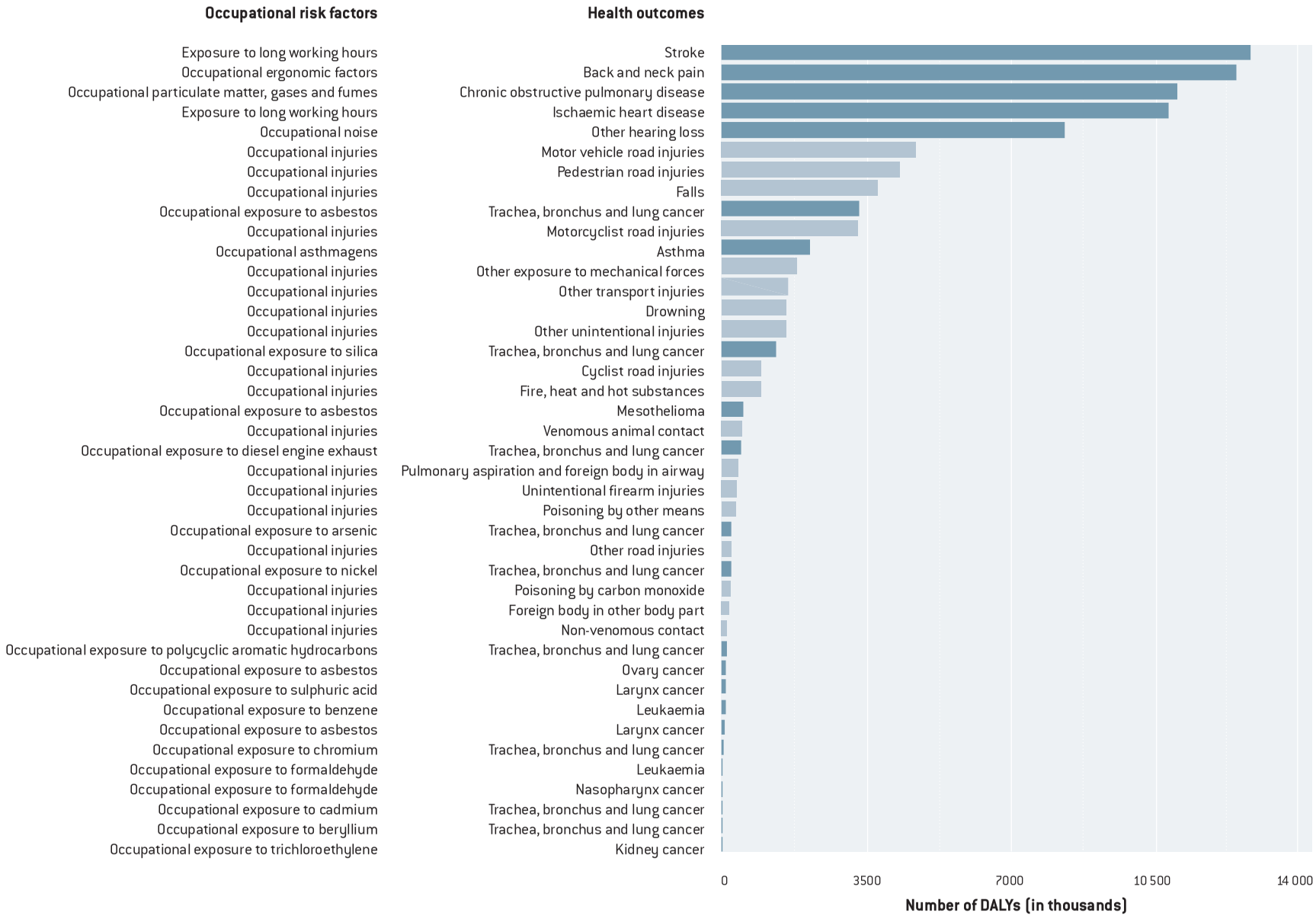
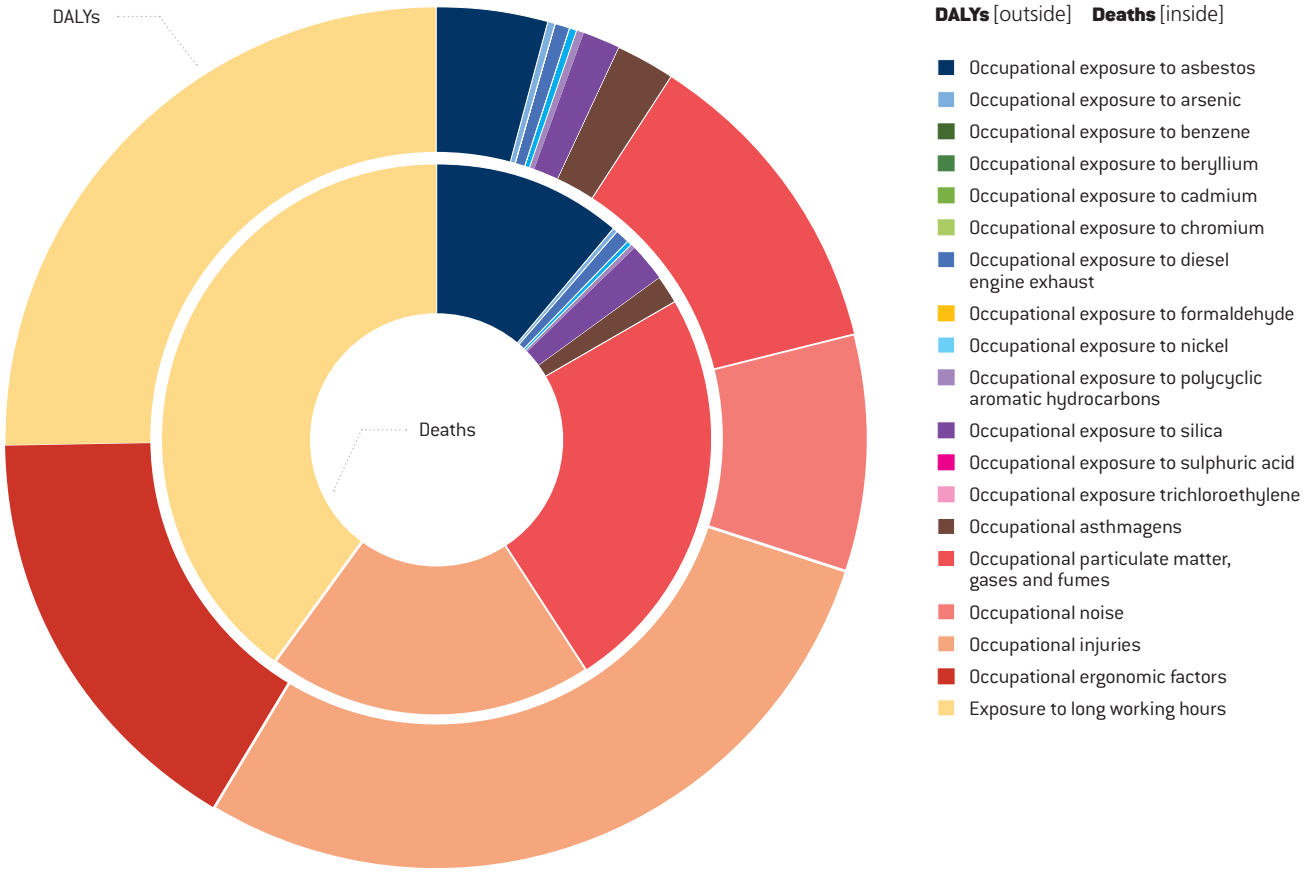


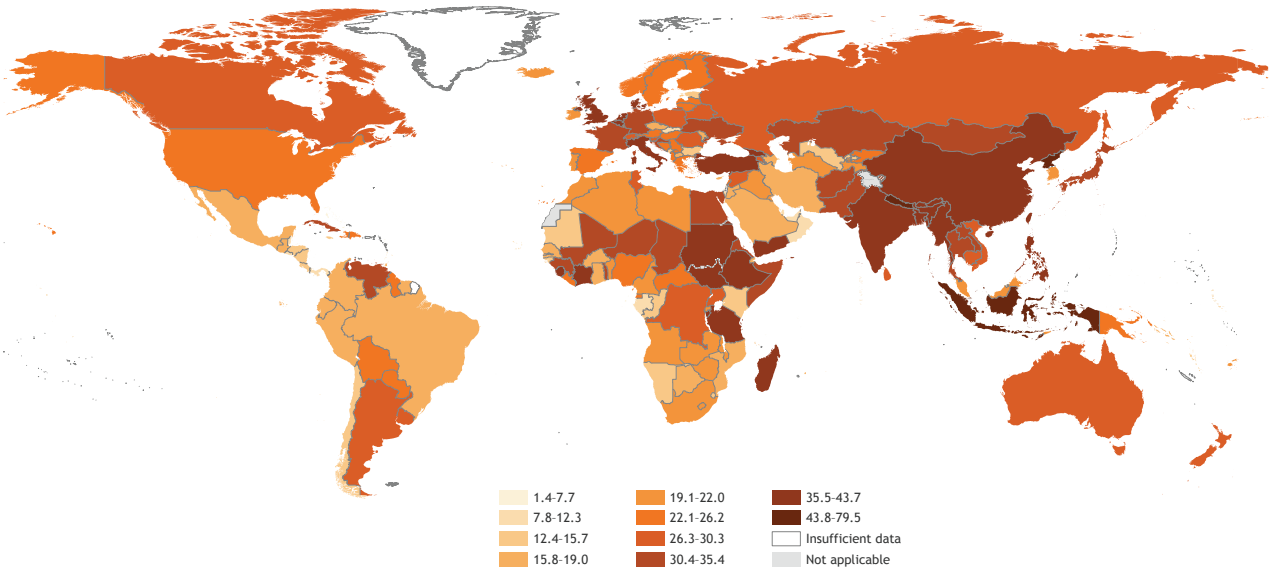
FIGURE 7
PROPORTIONS OF TOTAL ATTRIBUTABLE DEATHS AND DALYS, BY OCCUPATIONAL RISK FACTOR, 183 COUNTRIES, FOR THE YEAR 2016



In Section 4.2, we present some of the main results at the global level for the year 2016. Estimates for the burdens of ischaemic heart disease and stroke attributable to exposure to long working hours are described in more detail, including their trends over time and distribution by sex and age group, in Section 4.3. Throughout this Global Monitoring Report, where global estimates are discussed we provide absolute numbers. However, where trends over time or burdens for different subgroups are referred to, we also report rates per 100 000 population to aid comparability. In the text, these rates are provided per 100 000 working-age population (i.e. members of the population of age ≥ 15 years). We present the numbers of deaths and DALYs per 100 000 working-age population by country in Fig. 8 and Fig. 9, respectively. For consistency within the global Comparative Risk Assessment *(2, 3)*, we also provide a set of death and DALY rates, calculated per 100 000 total population of all ages (in which we assume that the number of deaths and DALYs as a result of exposure to occupational risk factors is zero for those aged < 15 years) in the annexes.

FIGURE 8

RATE OF TOTAL DEATHS (NUMBER OF DEATHS PER 100 000 WORKING-AGE POPULATION, I.E. AGE ≥ 15 YEARS) ATTRIBUTABLE TO THE 41 PAIRS OF OCCUPATIONAL RISK FACTOR AND HEALTH OUTCOME, BY COUNTRY, 183 COUNTRIES, FOR THE YEAR 2016



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: WHO/ILO Joint Estimates of the Work-related Burden of Disease and Injury
Map Production: WHO GIS Centre for Health, DNA/DDI

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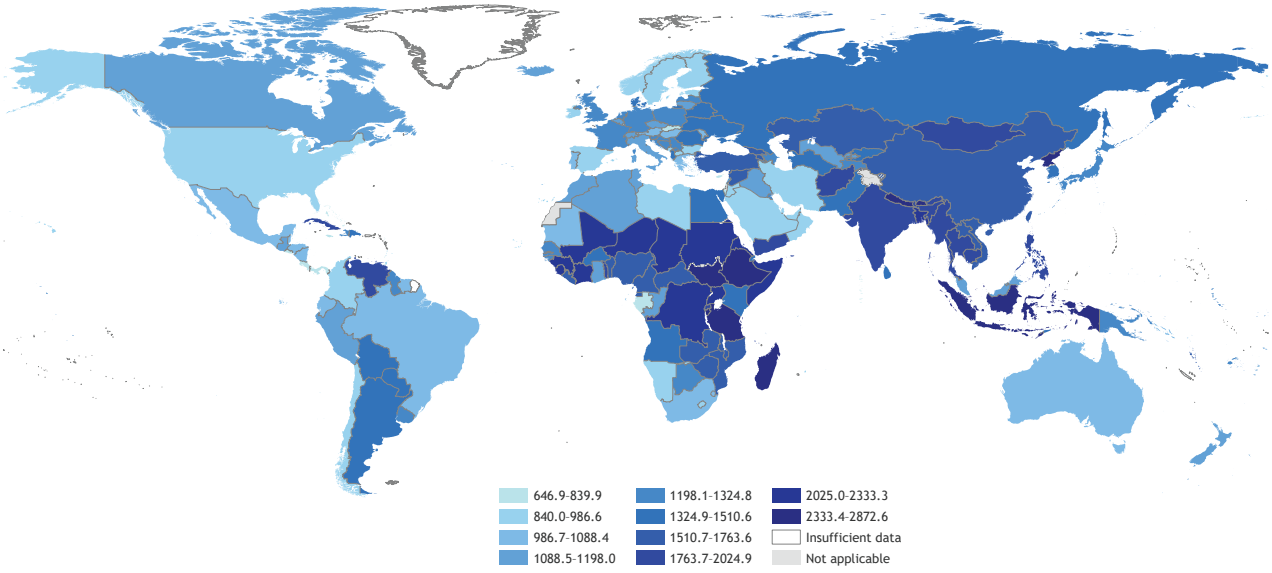
FIGURE 9

RATE OF TOTAL DALYS (NUMBER OF DALYS PER 100 000 WORKING-AGE POPULATION, I.E. AGE ≥ 15 YEARS) ATTRIBUTABLE TO THE 41 PAIRS OF OCCUPATIONAL RISK FACTOR AND HEALTH OUTCOME, BY COUNTRY, 183 COUNTRIES, FOR THE YEAR 2016



The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: WHO/ILO Joint Estimates of the Work-related Burden of Disease and Injury
Map Production: WHO GIS Centre for Health, DNA/DDI

World Health Organization

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4.2. Estimates for established pairs

The estimates of number of deaths and DALYs for the 39 established pairs of occupational risk factor and health outcome are listed for the years 2000, 2010 and 2016 in Annex 2. We discuss each occupational risk factor and report its attributable burden of disease, and describe primary preventative interventions, in Sections 4.2.1–4.2.18 below. Thirteen of the occupational risk factors (asbestos, arsenic, benzene, beryllium, cadmium, chromium, diesel engine exhaust, formaldehyde, nickel, polycyclic aromatic hydrocarbons, silica, sulphuric acid and trichloroethylene) are classified as Group 1 carcinogens by the WHO International Agency for Research on Cancer (IARC), meaning there is "sufficient evidence of carcinogenicity in humans".

To reduce work-related burden of disease, intersectoral action is needed that adopts a population health approach to workers' health, scales up "efforts to promote healthier and safer workplaces and improve access to occupational health services" *(37)* and addresses the social determinants of workers' health to improve health equity *(38, 39)*. For example, the ratification and implementation of occupational health and safety ILO standards (conventions, protocols and recommendations) play a fundamental role in ensuring effective occupational and workers' health and safety policies and systems that prevent exposure to occupational risk factors and, in turn, prevent work-related burden of disease.

Similarly, the integration of workers' health in people-centred care and universal health coverage, and dedicated policies and programmes for occupational health services for all workers, are also fundamental, especially to reach some health-disadvantaged workers (e.g. those working in the informal economy). Occupational health services can take the form of periodic occupational health risk assessments, as well as the provision of other health services that prevent exposure to occupational risk factors, from enterprise, sector, community, national, regional to global levels. These can be used to provide early detection of occupational diseases with periodic medical examinations of workers (e.g. screening for lung cancer or testing for exposure to occupational risk factors). For workers such as those in the informal economy, these services may only be delivered to them if provided through primary or community health care systems.

These assessments, policies and programmes should be developed with the active involvement of employers and workers or their representatives. These interventions should be considered as part of a hierarchy of controls *(40)*; ideally, risk factors should be eliminated or less hazardous substitutions used *(41)*. Where this is not possible, engineering controls followed by administrative controls can be introduced (in this order). If all else fails, as a last and least-preferred option in the hierarchy, workers can be protected from exposure to occupational risk factors with personal protective equipment. ILO standards *(42)* and WHO and ILO guidelines and tools support governments, workers and employers to prevent the burden of disease attributable to exposures to occupational risk factors *(43, 44)* (see also forthcoming WHO publication *Compendium of WHO and other UN guidance on health and environment*).

4.2.1. Occupational exposure to asbestos

Occupational exposure to asbestos is an established risk factor (IARC Group 1 carcinogen) for a number of cancers, including lung cancer, ovary cancer, larynx cancer and mesothelioma *(45)*. WHO groups trachea, bronchus and lung cancers together as one burden of disease category *(26)*.

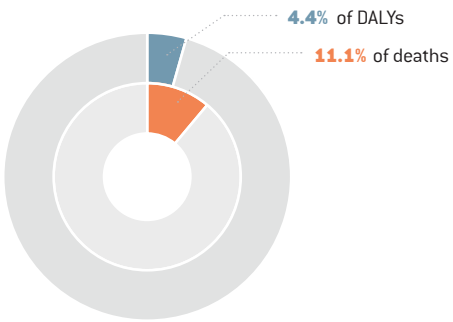
Burden of disease attributable to **OCCUPATIONAL EXPOSURE TO ASBESTOS** 2016 Global estimate (Fig. 10)

DEATHS
209 481
(95% UR: 205 856–213 106)

DALYs
3.97 MILLION
(95% UR: 3.95–3.99)

- 177 614 (95% UR: 174 030–181 198) deaths and 3.29 (95% UR: 3.28–3.29) million DALYs as a result of **TRACHEA, BRONCHUS AND LUNG CANCERS**, an increase of 28.9% (from 137 786) and 17.2% (from 2.80 million), respectively, from 2000;
- 5464 (95% UR: 5325–5603) deaths and 0.10 (95% UR: 0.09–0.11) million DALYs as a result of **OVARY CANCER**, an increase of 20.9% (from 4519) and 13.4% (from 0.09 million), respectively, from 2000;
- 3299 (95% UR: 3194–3404) deaths and 0.07 (95% UR: 0.54–0.85) million DALYs as a result of **LARYNX CANCER**, an increase of 12.5% (from 2933) and 3.8% (from 0.07 million), respectively, from 2000; and
- 23 104 (95% UR: 22 593–23 615) deaths and 0.51 (95% UR: 0.50–0.53) million DALYs as a result of **MESOTHELIOMA**, an increase of 81.9% (from 12 703) and 56.8% (from 0.33 million), respectively, from 2000.

FIGURE 10
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL EXPOSURE TO ASBESTOS, 183 COUNTRIES, FOR THE YEAR 2016



Occupational exposure to asbestos occurs through inhalation of asbestos fibres in the working environment. Workers in the mining, construction and civil engineering, agriculture, automotive, thermal and other insulation, boat building, ship-breaking and mechanics industrial sectors are among those at risk of occupational exposure to asbestos. There is also a risk of occupational exposure during the manufacturing of new asbestos products where this still takes place. Additionally, workers who clean up and construct new infrastructure after a natural disaster are at risk of occupational exposure, as old and/or new asbestos products may be present in the post-disaster environment *(46)*.

The burden of disease attributable to occupational exposure to asbestos could be reduced and prevented through the elimination of the use of all forms of asbestos in workplaces *(47)*. To start moving towards this overall goal, the ILO Asbestos Convention *(48)* can be ratified and implemented. Countries can include measures to protect workers from exposure to asbestos in their national programmes on occupational health and safety *(49)*. All forms of asbestos currently in place should be identified and properly managed *(49)*. Additionally, strict specific controls can be

put in place at the workplace, for example introduction of engineering controls (e.g. local exhaust ventilation) or administrative controls (e.g. worker education and training), and provision of personal protective equipment *(47, 50)*. Regulatory controls and guidance on measures to prevent exposure to asbestos in workplaces and during asbestos removal should be established *(51)*. Worker registries can be established (with details of past and/or current exposures to asbestos); medical surveillance of exposed workers can be organized; and early diagnosis, treatment and rehabilitation services for asbestos-related diseases can be improved *(51)*.

4.2.2. Occupational exposure to arsenic

Occupational exposure to arsenic is an established risk factor for lung cancer *(45)*. All "arsenic and inorganic arsenic compounds" (both elemental arsenic and different inorganic arsenic species) are classified as a Group 1 carcinogen by IARC *(45)*.

Burden of disease attributable to **OCCUPATIONAL EXPOSURE TO ARSENIC** 2016 Global estimate (Fig. 11)

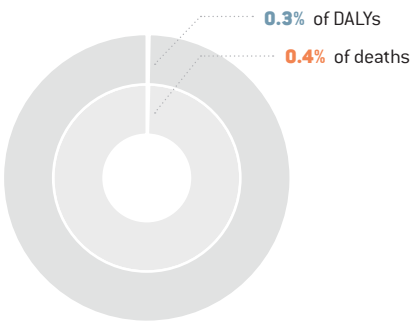
DEATHS
7589
(95% UR: 7272–7906)

DALYs
0.24 MILLION
(95% UR: 0.24–0.24)

These deaths and DALYs occur as a result of **TRACHEA, BRONCHUS AND LUNG CANCERS**, and increased 34.3% (from 5651) and 28.9% (from 0.18 million), respectively, from 2000.

Occupational exposure to arsenic occurs through inhalation. Arsenic is mostly used in industrial processes to produce antifungal wood preservatives, in particular chromated copper arsenate, which can lead to soil contamination. Arsenic is also used in the pharmaceutical and glass industries, in the manufacture of alloys, sheep dips, leather preservatives, arsenic-containing pigments, antifouling paints and poison baits, and, to a diminishing extent, in the production of agrochemicals (especially for use in orchards and vineyards). Arsenic compounds are also used in smaller amounts in the microelectronics and optical industries. Primary prevention and operational controls, as described in Section 4.2.1, could play an important role in reducing occupational exposure to arsenic and its attributable disease burden *(52)*.

FIGURE 11
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL EXPOSURE TO ARSENIC, 183 COUNTRIES, FOR THE YEAR 2016



4.2.3. Occupational exposure to benzene

Occupational exposure to benzene, classified as a Group 1 carcinogen by IARC, is an established risk factor for leukaemia *(53)*.

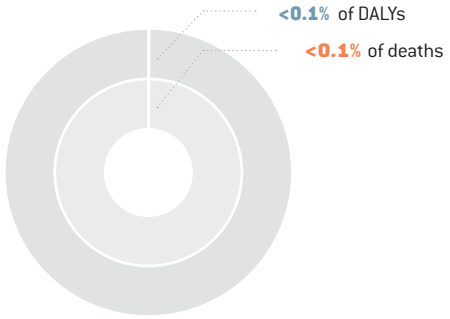
Burden of disease attributable to **OCCUPATIONAL EXPOSURE TO BENZENE** 2016 Global estimate (Fig. 12)

DEATHS
1452
(95% UR: 1384–1520)

DALYs
0.08 MILLION
(95% UR: 0.08–0.09)

These deaths and DALYs occur as a result of **LEUKAEMIA**, and increased 23.6% (from 1175) and 15.4% (from 0.07 million), respectively, from 2000.

FIGURE 12
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL EXPOSURE TO BENZENE, 183 COUNTRIES, FOR THE YEAR 2016



Occupational exposure to benzene primarily occurs through inhalation or skin absorption. Workers at risk include automotive mechanics, paper factory workers, carpenters and painters, with adhesive, chemical, petroleum, rubber and shoe/leather industries carrying the greatest risk of exposure. Occupational exposure to benzene continues to occur in medical and research laboratories (pathologic anatomy laboratories), particularly in low- and middle-income countries. ILO Convention No. 136 on benzene (1971) defines the principles and framework to limit exposure to benzene and its implication to workers' health *(54)*. Primary prevention and operational controls, as described in Section 4.2.1, could play an important role in reducing occupational exposure to benzene and its attributable disease burden. No safe level of exposure to benzene can be recommended *(55)*; use of benzene should therefore be eliminated where possible and educational activities conducted to discourage use of benzene *(56, 57)*. Benzene-exposed workers should also be screened for the associated health effects.

4.2.4. Occupational exposure to beryllium

Occupational exposure to beryllium, a Group 1 carcinogen as classified by IARC, is an established risk factor for lung cancer *(58)*.

Burden of disease attributable to **OCCUPATIONAL EXPOSURE TO BERYLLIUM**
2016 Global estimate
(Fig. 13)

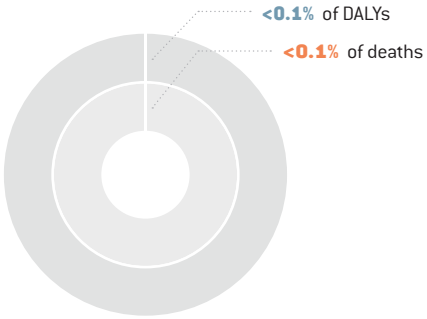
DEATHS
165
(95% UR: 147–183)

DALYs
0.007 MILLION
(95% UR: 0.007–0.007)

These deaths and DALYs occur as a result of **TRACHEA, BRONCHUS AND LUNG CANCERS**, and increased 63.4% (from 101) and 44.5% (from 0.005 million), respectively, from 2000.

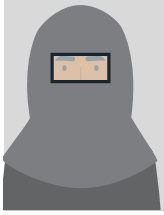
Occupational exposure to beryllium occurs through inhalation or skin absorption. Workers at risk include machinists, metal fabricators and welders who produce or process this chemical, as well as workers in the aeronautic industry and those involved in the production of electronic and micro-electronic devices. Primary prevention and operational controls, as described in Section 4.2.1, could play an important role in reducing occupational exposure to beryllium and its attributable disease burden. Air concentrations of beryllium should be regularly monitored *(57, 59)*, worker exposure measured, access to high-exposure areas limited, effective control methods implemented, medical surveillance for workers exposed to high prevalence or levels conducted, and workers educated about the risk factor and how to limit exposures to beryllium *(60)*.

FIGURE 13
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL EXPOSURE TO BERYLLIUM, 183 COUNTRIES, FOR THE YEAR 2016



4.2.5. Occupational exposure to cadmium

Occupational exposure to cadmium, a Group 1 carcinogen according to IARC classification, is an established risk factor for lung cancer *(58)*.



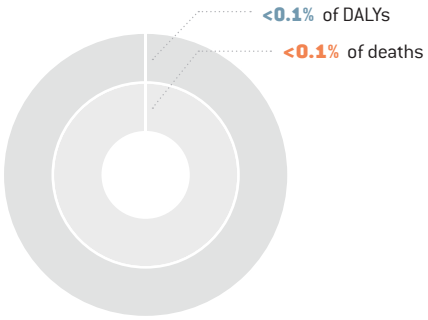
Burden of disease attributable to **OCCUPATIONAL EXPOSURE TO CADMIUM**
2016 Global estimate
(Fig. 14)

DEATHS
452
(95% UR: 416–488)

DALYs
0.02 MILLION
(95% UR: 0.02–0.02)

These deaths and DALYs occur as a result of **TRACHEA, BRONCHUS AND LUNG CANCERS**, and increased 62.0% (from 279) and 46.8% (from 0.01 million), respectively, from 2000.

FIGURE 14
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL EXPOSURE TO CADMIUM, 183 COUNTRIES, FOR THE YEAR 2016



Occupational exposure to cadmium occurs through inhalation from working in the production and refinement of cadmium, nickel-cadmium battery manufacture, cadmium pigment manufacture and formulation, cadmium alloy production, mechanical plating, zinc smelting, brazing with silver-cadmium-silver alloy solder and polyvinylchloride compounding. Loss of life and health attributable to occupational exposure to cadmium could be prevented through interventions aiming to promote healthy and safe conditions for workers exposed to or handling cadmium-containing products *(61, 62)*. Primary prevention and operational controls, as described in Section 4.2.1, could play an important role in reducing occupational exposure to cadmium and its attributable disease burden *(57)*.

4.2.6. Occupational exposure to chromium

Occupational exposure to chromium is an established risk factor for lung cancer; specifically, hexavalent chromium is classified by IARC as a Group 1 carcinogen *(45)*.

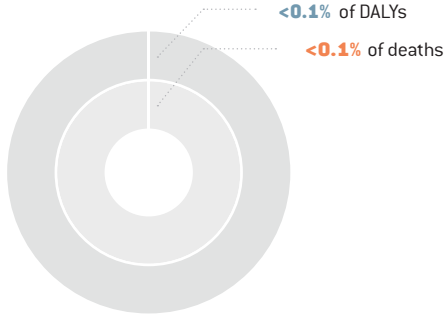
Burden of disease attributable to **OCCUPATIONAL EXPOSURE TO CHROMIUM**
2016 Global estimate
(Fig. 15)

DEATHS
1022
(95% UR: 958–1086)

DALYs
0.04 MILLION
(95% UR: 0.04–0.04)

These deaths and DALYs occur as a result of **TRACHEA, BRONCHUS AND LUNG CANCERS**, and increased 64.8% (from 620) and 51.0% (from 0.02 million), respectively, from 2000.

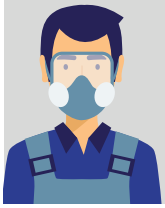
FIGURE 15
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL EXPOSURE TO CHROMIUM, 183 COUNTRIES, FOR THE YEAR 2016



Occupational exposure to chromium occurs through inhalation, and mainly in the production, use and welding of chromium-containing metals and alloys; in electroplating; and in the production and use of chromium-containing compounds, such as pigments, paints, catalysts, chromic acid, tanning agents and pesticides *(45)*. Primary prevention and operational controls *(63)*, as described in Section 4.2.1, could play an important role in reducing occupational exposure to chromium and its attributable disease burden *(57)*.

4.2.7. Occupational exposure to diesel engine exhaust

Occupational exposure to diesel engine exhaust, a Group 1 carcinogen as classified by IARC, is an established risk factor for lung cancer *(64)*.



Burden of disease attributable to **OCCUPATIONAL EXPOSURE TO DIESEL ENGINE EXHAUST** 2016 Global estimate (Fig. 16)

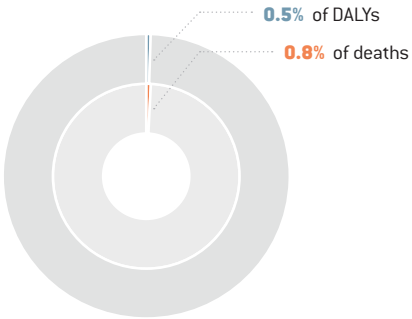
DEATHS
14 728
(95% UR: 14 017–15 439)

DALYs
0.47 MILLION
(95% UR: 0.47–0.47)

These deaths and DALYs occur as a result of **TRACHEA, BRONCHUS AND LUNG CANCERS**, and increased 61.6% (from 9116) and 55.1% (from 0.30 million), respectively, from 2000.

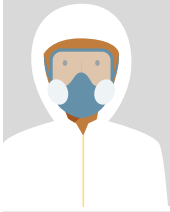
Occupational exposure to diesel engine exhaust occurs through inhalation, and all sectors are at risk. Higher exposures are observed for indoor workers working in confined spaces, for example, mechanics and underground parking supervisors, as well as those working in civil engineering and industrial maintenance. Prevention of cancer burden attributable to occupational exposure to diesel engine exhaust could be achieved through interventions replacing diesel engines with cleaner alternatives for transport (e.g. electric engines) and power generation (e.g. electric generators), as well as those aiming to provide adequate ventilation and encourage good work practices *(65)*. Placing maximum limits on emissions can play an important role in regulating diesel engine exhaust content *(65)*.

FIGURE 16
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL EXPOSURE TO DIESEL ENGINE EXHAUST, 183 COUNTRIES, FOR THE YEAR 2016



4.2.8. Occupational exposure to formaldehyde

Occupational exposure to formaldehyde, a Group 1 carcinogen as per IARC classification, is an established risk factor for nasopharynx cancer and leukaemia *(66)*.



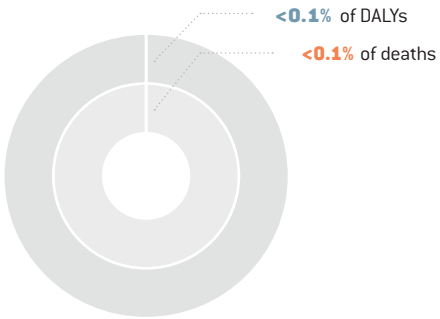
Burden of disease attributable to **OCCUPATIONAL EXPOSURE TO FORMALDEHYDE** 2016 Global estimate (Fig. 17)

DEATHS
743
(95% UR: 693–793)

DALYs
0.05 MILLION
(95% UR: 0.04–0.05)

- 327 (95% UR: 289–365) deaths and 0.02 (95% UR: 0.01–0.02) million DALYs as a result of **NASOPHARYNX CANCER**, an increase of 24.3% (from 263) and 12.3% (from 0.016 million), respectively, from 2000; and
- 416 (95% UR: 383–449) deaths and 0.03 (95% UR: 0.03–0.03) million DALYs as a result of **LEUKAEMIA**, an increase of 18.9% (from 350) and 9.3% (from 0.03 million), respectively, from 2000.

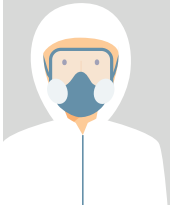
FIGURE 17
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL EXPOSURE TO FORMALDEHYDE, 183 COUNTRIES, FOR THE YEAR 2016



Occupational exposure to formaldehyde occurs through inhalation. Occupations at risk include some in the health sector, where formaldehyde continues to be used as a disinfectant and fixator in pathologic anatomy; exposure also occurs within chemical industries. Primary prevention and operational controls *(67)* as described in Section 4.2.1 could play an important role in reducing occupational exposure to formaldehyde and its attributable disease burden.

4.2.9. Occupational exposure to nickel

Occupational exposure to nickel, a Group 1 carcinogen as classified by IARC, is an established risk factor for lung cancer *(45)*.



Burden of disease attributable to **OCCUPATIONAL EXPOSURE TO NICKEL** 2016 Global estimate (Fig. 18)

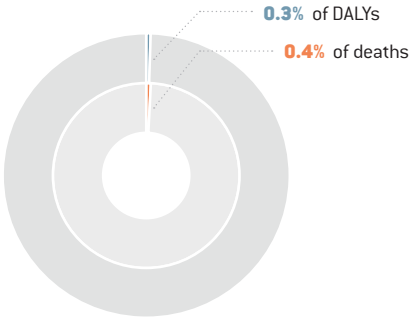
DEATHS
7301
(95% UR: 6965–7637)

DALYs
0.23 MILLION
(95% UR: 0.23–0.23)

These deaths and DALYs occur as a result of **TRACHEA, BRONCHUS AND LUNG CANCERS**, and increased 34.0% (from 5449) and 28.6% (from 0.18 million), respectively, from 2000.

Occupational exposure to nickel occurs through both inhalation and cutaneous absorption. Occupations at risk include manufacturers of fabricated metal products or machinists and welders. Primary prevention and operational controls, as described in Section 4.2.1, could be of great importance in reducing occupational exposure to nickel and the attributable disease burden. Workers occupationally exposed to nickel and its compounds should undergo periodic health examinations, particularly of the lungs, upper respiratory tract and skin *(68)*.

FIGURE 18
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL EXPOSURE TO NICKEL, 183 COUNTRIES, FOR THE YEAR 2016



4.2.10. Occupational exposure to polycyclic aromatic hydrocarbons

Occupational exposure to polycyclic aromatic hydrocarbons is an established risk factor for lung cancer, having been classified by IARC as a Group 1 carcinogen for this cancer *(69)*.

Burden of disease attributable to **OCCUPATIONAL EXPOSURE TO POLYCYCLIC AROMATIC HYDROCARBONS**
2016 Global estimate
(Fig. 19)

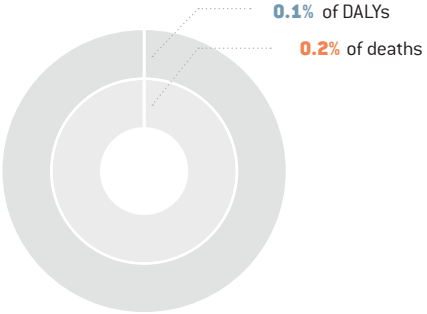
DEATHS
3881
(95% UR: 3671–4091)

DALYs
0.13 MILLION
(95% UR: 0.13–0.13)

These deaths and DALYs occur as a result of **TRACHEA, BRONCHUS AND LUNG CANCERS**, and increased 59.8% (from 2428) and 50.9% (from 0.08 million), respectively, from 2000.

Occupational exposure to polycyclic aromatic hydrocarbons occurs through inhalation and skin absorption. Occupations at risk include those working in the coal gasification, aluminium production, coke production, road pavement (exposure to bitumen and their emissions), construction and civil engineering industries. Exposure to polycyclic aromatic hydrocarbons in occupational settings should be eliminated or minimized by reducing emissions to the extent possible or, when they cannot be sufficiently reduced, by providing effective collective and personal protection *(70)*.

FIGURE 19
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL EXPOSURE TO POLYCYCLIC AROMATIC HYDROCARBONS, 183 COUNTRIES, FOR THE YEAR 2016



4.2.11. Occupational exposure to silica

Occupational exposure to silica, classified by IARC as a Group 1 carcinogen, is an established risk factor for lung cancer *(45)*.

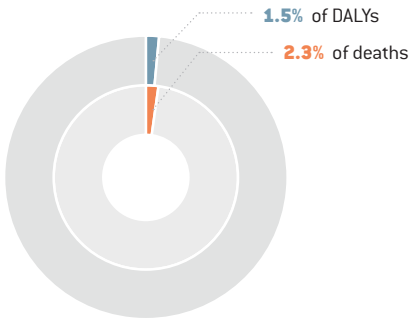
Burden of disease attributable to **OCCUPATIONAL EXPOSURE TO SILICA** 2016 Global estimate (Fig. 20)

DEATHS
42 258
(95% UR: 40 632–43 884)

DALYs
1.30 MILLION
(95% UR: 1.30–1.30)

These deaths and DALYs occur as a result of **TRACHEA, BRONCHUS AND LUNG CANCERS**, and increased 32.4% (from 31 910) and 27.4% (from 1.02 million), respectively, from 2000.

FIGURE 20
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL EXPOSURE TO SILICA, 183 COUNTRIES, FOR THE YEAR 2016



Occupational exposure to silica occurs through inhalation of silica (i.e. quartz) dust. Workers at risk include those in mining, construction, agriculture, oil and gas extraction, manufacturing (of non-metallic/mineral products, e.g. pottery/ceramics and brick), and the cutting, shaping and finishing of stone, as well as those in niche industries utilizing abrasive sandblasting (abrasive blasting of garments in countries that have not yet banned the practice; abrasive blasting in restoration and salvage). Establishing and implementing regulations and labour inspections could reduce workers' exposure to silica *(71)*. Primary prevention is risk assessment, based on regular workplace sampling for respirable dust using best practice methods, and control measures, following the hierarchy of controls. Secondary prevention includes implementation of periodic screening and health surveillance of workers exposed to respirable silica. Occupational exposure to respirable silica dust should be eliminated or, if not possible, reduced to the extent possible *(72)*.

4.2.12. Occupational exposure to sulphuric acid

Occupational exposure to sulphuric acid is an established risk factor for larynx cancer. Mists from strong inorganic acids have been classified by IARC as a Group 1 carcinogen *(73)*.

Burden of disease attributable to **OCCUPATIONAL EXPOSURE TO SULPHURIC ACID** 2016 Global estimate (Fig. 21)

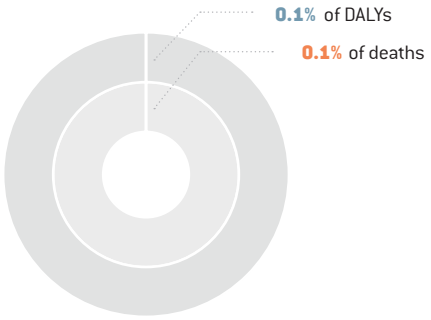
DEATHS
2564
(95% UR: 2429–2699)

DALYs
0.09 MILLION
(95% UR: 0.08–0.10)

These deaths and DALYs occur as a result of **LARYNX CANCER**, and increased 15.1% (from 2227) and 12.0% (from 0.08 million), respectively, from 2000.

Occupational exposure to sulphuric acid occurs through inhalation. Workers at risk include those in the automotive industry as well as firefighters and plumbers; workers involved in the manufacture of strong inorganic acids and treating metal with acid in steel works are also at risk of occupational exposure. Primary prevention and operational controls *(74)*, as described in Section 4.2.1, are crucial in reducing occupational exposure to sulphuric acid and its attributable disease burden.

FIGURE 21
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL EXPOSURE TO SULPHURIC ACID, 183 COUNTRIES, FOR THE YEAR 2016



4.2.13. Occupational exposure to trichloroethylene

Occupational exposure to trichloroethylene, which IARC has classified as a Group 1 carcinogen, is an established risk factor for kidney cancer *(75)*.

Burden of disease attributable to **OCCUPATIONAL EXPOSURE TO TRICHLOROETHYLENE** 2016 Global estimate (Fig. 22)

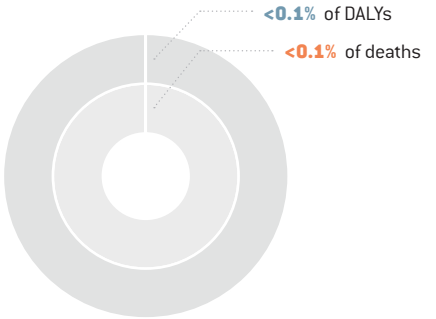
DEATHS
25
(95% UR: 16–34)

DALYs
0.002 MILLION
(95% UR: 0.002–0.003)

These deaths and DALYs occur as a result of **KIDNEY CANCER**, and increased 316.7% (from 6) and 87.6% (from 0.001 million), respectively, from 2000.

Occupational exposure to trichloroethylene occurs through inhalation and skin absorption. Factory workers are included in those at risk, as trichlorethylene is used as a solvent for degreasing metal parts during manufacture of a variety of products. Primary prevention and operational controls, detailed in Section 4.2.1, are vital for reducing occupational exposure to trichloroethylene and its attributable disease burden.

FIGURE 22
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL EXPOSURE TO TRICHLOROETHYLENE, 183 COUNTRIES, FOR THE YEAR 2016



4.2.14. Occupational asthmagens

Occupational exposure to asthmagens is an established risk factor for asthma *(76)*.

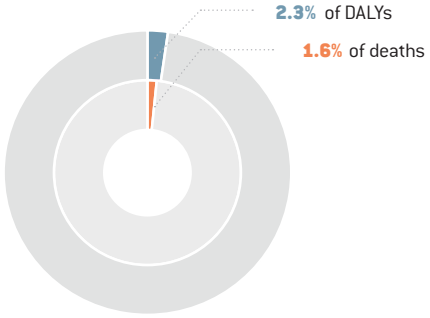
Burden of disease attributable to **OCCUPATIONAL ASTHMAGENS** 2016 Global estimate (Fig. 23)

DEATHS
29 641
(95% UR: 28 051–31 231)

DALYs
2.10 MILLION
(95% UR: 2.10–2.11)

These deaths and DALYs occur as a result of **ASTHMA**, and decreased 16.0% (from 35 293) and 0.1% (from 2.10 million), respectively, from 2000.

FIGURE 23
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL ASTHMAGENS, 183 COUNTRIES, FOR THE YEAR 2016



The occupational exposure pathway for asthmagens is through inhalation. Asthmagens are sensitizing chemicals or biological agents that cause a permanent immunologically mediated change. Workers at risk include paint sprayers, chemical workers, welders and animal handlers. The burden of asthma attributable to occupational asthmagens could be prevented or reduced through interventions that eliminate or substitute processes or materials that lead to exposure to allergens and irritants. This could be achieved through the introduction of engineering controls (e.g. enclosed processes and local exhaust ventilation), the introduction of administrative controls (e.g. policies for smoke-free workplaces, safe work practices, exposure reduction and prevention), and worker education and training on protection from this risk factor at the workplace.

4.2.15. Occupational particulate matter, gases and fumes

Occupational particulate matter, gases and fumes is an established risk factor for chronic obstructive pulmonary disease *(77)*.

Burden of disease attributable to **OCCUPATIONAL PARTICULATE MATTER, GASES AND FUMES** 2016 Global estimate (Fig. 24)

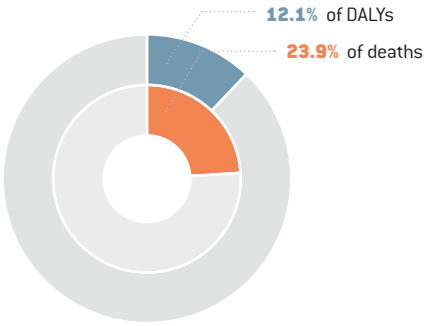
DEATHS
450 381
(95% UR: 430 248–470 514)

DALYs
10.86 MILLION
(95% UR: 10.85–10.86)

These deaths and DALYs occur as a result of **CHRONIC OBSTRUCTIVE PULMONARY DISEASE**, and decreased 4.9% (from 473 725) and 1.8% (from 11.05 million), respectively, from 2000.

Workers are exposed to particulate matter, gases and fumes through inhalation. Workers in all occupations and sectors are at risk. Chronic obstructive pulmonary disease occurs with abnormal inflammatory response by the lungs "to noxious particles or gases" *(78)*. The risk of chronic obstructive pulmonary disease has been estimated to be increased by 58–182% among people occupationally exposed to particulate matter, gases and fumes, compared with people unexposed to this occupational risk factor *(79)*. The prevention of burden of disease from occupational exposure to particulate matter, gases and fumes could be achieved through interventions introducing engineering controls, such as physical containment or segregation of the emission source, or the application of general, local exhaust and specialized ventilation and dust suppression techniques *(80)*.

FIGURE 24
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL PARTICULATE MATTER, GASES AND FUMES, 183 COUNTRIES, FOR THE YEAR 2016



4.2.16. Occupational noise

Occupational noise is an established risk factor for other hearing loss. Other hearing loss includes hearing loss induced by occupational noise, one of the most common occupational diseases.

Burden of disease attributable to **OCCUPATIONAL NOISE** 2016 Global estimate (Fig. 25)

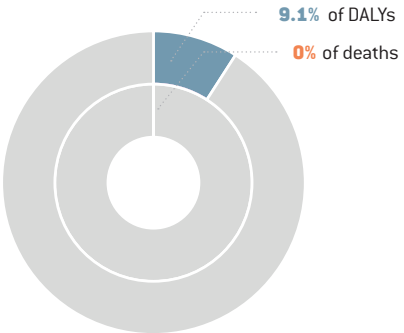
No deaths attributable to occupational noise

DALYs
8.16 MILLION
(95% UR: 8.16–8.17)

These DALYs occur as a result of **OTHER HEARING LOSS**, an increase of 38.0% (from 5.92 million) from 2000.

Countries have set different occupational exposure limits for noise; however, for burden of disease estimations, occupational noise is defined as exposure at levels equal to or greater than a time-weighted average of the level of sound of 85 decibels (A). Occupational exposure to noise can occur in all sectors, but workers at particularly high risk include those in aeronautics; metallurgical, construction and civil engineering; forestry; mining; agriculture; fishing; electricity, gas and water supply; and transport and communications industries. Prevention of hearing loss from occupational exposure to noise could be achieved through interventions that introduce engineering controls (e.g. reducing noise emission from industrial machinery), impose administrative controls (e.g. limiting the time a worker spends in noisy environments), monitor noise, carry out audiometric testing, train workers and enforce the wearing of personal protective equipment *(80)*.

FIGURE 25
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL NOISE, 183 COUNTRIES, FOR THE YEAR 2016



4.2.17. Occupational injuries

In this Global Monitoring Report, we define the risk factor of occupational injuries according to the Comparative Risk Assessment framework (2, 3, 25). The exposed population is defined as the "proportion of the population at risk to injuries related to work or through their occupation" *(25)*.

Burden of disease attributable to **OCCUPATIONAL INJURIES**
2016 Global estimate (Fig. 26)

DEATHS
363 283
(95% UR: 358 251–368 315)

DALYs
26.44 MILLION
(95% UR: 26.42–26.46)

Road injuries

- 72 157 (95% UR: 69 301–75 013) deaths and 4.24 (95% UR: 4.24–4.25) million DALYs as a result of **PEDESTRIAN ROAD INJURIES**, a decrease of 8.4% (from 78 790) and 6.7% (from 4.55 million), respectively, from 2000;
- 12 018 (95% UR: 11 471–12 565) deaths and 0.93 (95% UR: 0.93–0.94) million DALYs as a result of **CYCLIST ROAD INJURIES**, an increase of 10.1% (from 10 915) and 19.3% (from 0.78 million), respectively, from 2000;
- 48 151 (95% UR: 45 394–50 908) deaths and 3.25 (95% UR: 3.25–3.25) million DALYs as a result of **MOTORCYCLIST ROAD INJURIES**, an increase of 14.8% (from 41 945) and 15.8% (from 2.81 million), respectively, from 2000;
- 76 946 (95% UR: 74 788–79 104) deaths and 4.64 (95% UR: 4.64–4.64) million DALYs as a result of **MOTOR VEHICLE ROAD INJURIES**, an increase of 13.4% (from 67 879) and 12.6% (from 4.12 million), respectively from 2000;
- 1859 (95% UR: 1776–1942) deaths and 0.23 (95% UR: 0.23–0.24) million DALYs as a result of **OTHER ROAD INJURIES**, an increase of 5.4% (from 1764) and 33.9% (from 0.17 million), respectively, from 2000; and
- 16 864 (95% UR: 16 311–17 417) deaths and 1.58 (95% UR: 1.58–1.59) million DALYs as a result of **OTHER TRANSPORT INJURIES**, a decrease of 21.9% (from 21 597) and 15.2% (from 1.87 million), respectively, from 2000.

Poisonings

- 3772 (95% UR: 3391–4153) deaths and 0.21 (95% UR: 0.20–0.22) million DALYs as a result of **POISONING BY CARBON MONOXIDE**, a decrease of 49.1% (from 7408) and 48.0% (from 0.41 million), respectively, from 2000; and
- 5330 (95% UR: 4742–5918) deaths and 0.34 (95% URL 0.33–0.34) million DALYs as a result of **POISONING BY OTHER MEANS**, a decrease of 49.1% (from 10 477) and 45.7% (from 0.63 million), respectively, from 2000.

Falls

- 34 996 (95% UR: 33 672–36 320) deaths and 3.73 (95% UR: 3.72–3.73) million DALYs as a result of **FALLS**, a decrease of 4.9% (from 36 808) and an increase of 5.4% (from 3.54 million), respectively, from 2000.

Fire, heat and hot substances

- 10 234 (95% UR: 9 834–10 634) deaths and 0.92 (95% UR: 0.92–0.92) million DALYs as a result of **FIRE, HEAT AND HOT SUBSTANCES**, a decrease of 36.0% (from 16 002) and 23.4% (from 1.20 million), respectively, from 2000.

(Contd.)

Burden of disease attributable to **OCCUPATIONAL INJURIES**
2016 Global estimate (Fig. 26)

DEATHS
363 283
(95% UR: 358 251–368 315)

DALYs
26.44 MILLION
(95% UR: 26.42–26.46)

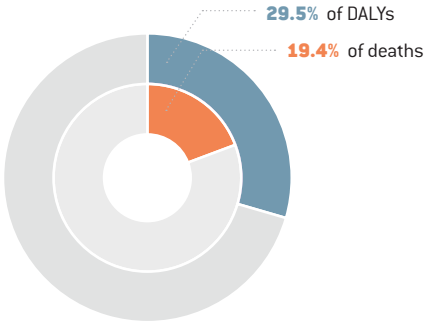
Drowning
- 26 281 (95% UR: 25 272–27 290) deaths and 1.53 (95% UR: 1.53–1.53) million DALYs as a result of **DROWNING**, a decrease of 20.7% (from 33 135) and 21.8% (from 1.96 million), respectively, from 2000.

Exposure to mechanical forces
- 5079 (95% UR: 4875–5283) deaths and 0.34 (95% UR: 0.34–0.35) million DALYs as a result of **UNINTENTIONAL FIREARMS INJURIES**, a decrease of 20.0% (from 6348) and 18.7% (from 0.42 million), respectively, from 2000;
- 17 406 (95% UR: 16 896–17916) deaths and 1.80 (95% UR: 1.80–1.80) million DALYs as a result of **OTHER EXPOSURE TO MECHANICAL FORCES**, a decrease of 18.3% (from 21 308) and 5.4% (from 1.90 million), respectively, from 2000;
- 7831 (95% UR: 7658–8004) deaths and 0.38 (95% UR: 0.38–0.38) million DALYs as a result of **PULMONARY ASPIRATION AND FOREIGN BODY IN AIRWAY**, a decrease of 7.5% (from 8470) and 9.4% (from 0.42 million), respectively, from 2000; and
- 649 (95% UR: 606–692) deaths and 0.17 (95% UR: 0.16–0.17) million DALYs as a result of **FOREIGN BODY IN OTHER BODY PART**, a decrease of 18.3% (from 794) and an increase of 1.6% (from 0.16 million), respectively, from 2000.

Other unintentional injuries
- 1213 (95% UR: 1142–1284) deaths and 0.13 (95% UR: 0.12–0.14) million DALYs as a result of **NON-VENOMOUS ANIMAL CONTACT**, a decrease of 18.9% (from 1495) and 15.5% (from 0.15 million), respectively, from 2000;
- 6359 (95% UR: 5951–6767) deaths and 0.48 (95% UR 0.47–0.49) million DALYs as a result of **VENOMOUS ANIMAL CONTACT**, a decrease of 31.3% (from 9261) and 26.1% (from 0.65 million), respectively, from 2000; and
- 16 138 (95% UR: 158 215–173 341) deaths and 1.53 (95% UR: 1.53–1.53) million DALYs as a result of **OTHER UNINTENTIONAL INJURIES**, a decrease of 24.9% (from 21 478) and 15.7% (from 1.81 million), respectively, from 2000.

Workers within many occupations and sectors are exposed to the risk factor of occupational injuries; those at particular risk include workers in the construction, transport, manufacturing and agricultural sectors. Loss of life and health attributable to occupational injuries could be reduced through primary prevention, including occupational health and safety risk assessments, as well as preventive interventions specific to certain occupational injuries. For example, the ILO Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187) *(81)* and Occupational Safety and Health Convention, 1981 (No. 155) *(82)* can be ratified and implemented. For economic activities where the

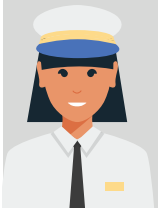
FIGURE 26
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL INJURIES, 183 COUNTRIES, FOR THE YEAR 2016



prevalence of occupational injuries is substantial, the ILO has compiled detailed code of practice documents. The practical recommendations of these codes of practice are intended for the use of all who have responsibility for health and safety in the respective economic sectors. The documents cover shipbuilding and ship repair, opencast mines, ports, use of machinery, agriculture, underground coal mines, steel industry, ship-breaking, non-ferrous metal industries, forestry work and construction *(83)*.

4.2.18. Occupational ergonomic factors

Occupational exposure to ergonomic factors is an established risk factor for back and neck pain.



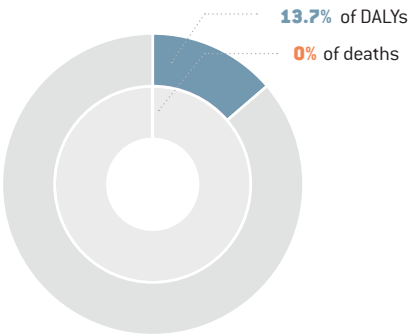
Burden of disease attributable to **OCCUPATIONAL ERGONOMIC FACTORS** 2016 Global estimate (Fig. 27)

No deaths attributable to occupational ergonomic factors

DALYs
12.27 MILLION
(95% UR: 12.27–12.27)

These DALYs occur as a result of **BACK AND NECK PAIN**, and increased 20.1% (from 10.21 million) from 2000.

FIGURE 27
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL ERGONOMIC FACTORS, 183 COUNTRIES, FOR THE YEAR 2016



Ergonomic factors that can lead to back and neck pain through occupational exposure include prolonged sitting, whole-body vibration and manual handling of loads. Neck pain can also be associated with teleworking and prolonged sitting time at improvised home office workstations. Workers in all sectors are at risk; high-risk industries include agriculture, construction, transport and communication, manufacturing, hotels and restaurants, health and social work, and mining. Reduction of health loss attributable to occupational exposure to ergonomic factors could be achieved through: the introduction of engineering controls (e.g. automation, lifting devices); setting limits on maximum weight for manual handling *(84)*; ergonomic workplace design, equipment and tools; ergonomic risk assessment; administrative controls (e.g. worker rotation, education and training); and, as a last resort, use of personal protective equipment (e.g. safety belts or harnesses).

4.3. Estimates for recently added pairs

In terms of the proportion of work-related burden of disease, exposure to long working hours (at a level of ≥ 55 hours per week) is the occupational risk factor with the largest attributable burden, and stroke and ischaemic heart disease are the health outcomes with the second and third largest attributable burdens.

Burden of disease attributable to **EXPOSURE TO LONG WORKING HOURS**
2016 Global estimate (Fig. 28)

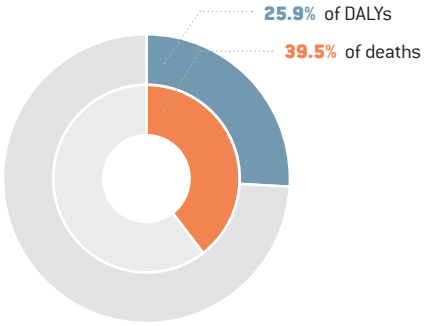
DEATHS
744 924
(95% UR: 705 519–784 329)

DALYs
23.26 MILLION
(95% UR: 22.15–24.37)

- 398 306 (95% UR: 369 693–426 919) deaths and 12.60 (95% UR: 11.82–13.39) million DALYs as a result of **STROKE**, an increase of 19.0% (from 334 724) and 21.7% (from 10.35 million), respectively, from 2000; and
- 346 618 (95% UR: 319 524–373 712) deaths and 10.66 (95% UR: 9.87–11.44) million DALYs as a result of **ISCHAEMIC HEART DISEASE**, an increase of 41.6% (from 244 844) and 41.2% (from 7.55 million), respectively, from 2000.

We provide a brief summary of the main findings for each of these recently added pairs of occupational risk factor and health outcome in the following. Two charts are provided for each pair, depicting the global (i) number of deaths per 100 000 working-age (≥ 15 years) population (i.e. death rate) and (ii) number of DALYs per 100 000 working-age population (i.e. DALY rate) for the year 2016. Distributions are disaggregated by age group (on the y axis) and sex (females are shown in yellow on the left and males are shown in blue on the right). We provide the estimates in more details in Annexes 4 and 5, in which death and DALY rates are provided: by country, regionally and globally; and for the years 2000, 2010 and 2016. The estimates are also provided disaggregated by sex and age group at https://www.who.int/teams/environment-climate-change-and-health/monitoring/who-ilo-joint-estimates.

FIGURE 28
PROPORTIONS OF WORK-RELATED DEATHS AND DALYS ATTRIBUTABLE TO OCCUPATIONAL EXPOSURE TO LONG WORKING HOURS, 183 COUNTRIES, FOR THE YEAR 2016



4.3.1. Exposure to long working hours: stroke

It is estimated that, globally in 2016, 398 306 deaths and 12.60 million DALYs as a result of stroke were attributable to exposure to long working hours (≥ 55 hours per week). Of the total global burden of stroke, 6.9% (398 306/5 747 289) of stroke deaths and 9.3% (12.6 million/135.9 million) of stroke DALYs are attributable to exposure to long working hours (Annex 1), where the total disease burden envelopes are sourced from the WHO Global Health Estimates *(26)*.

By region, the highest number of deaths from stroke attributable to exposure to long working hours was reported for the South-East Asia Region (158 993), followed by the Western Pacific Region (143 113); the lowest number was seen in the Region of the Americas (18 254) (Annex 4). This pattern was also reflected in the corresponding death rates: the highest number of deaths per 100 000 working-age population of 11.3 was reported for the South-East Asia Region, and the lowest of 2.4 in the Region of the Americas (Annex 4).

Regionally, the highest number of DALYs as a result of stroke attributable to exposure to long working hours was seen for the South-East Asia Region (4.87 million), closely followed by the Western Pacific Region (4.79 million) (Annex 4). The Region of the Americas had the lowest estimate of DALYs of 0.57 million. The same pattern was observed for the DALY rates: the highest number of DALYs per 100 000 working-age population of 345.4 was observed for the South-East Asia Region, and the lowest of 75.0 for the Region of the Americas (Annex 4).

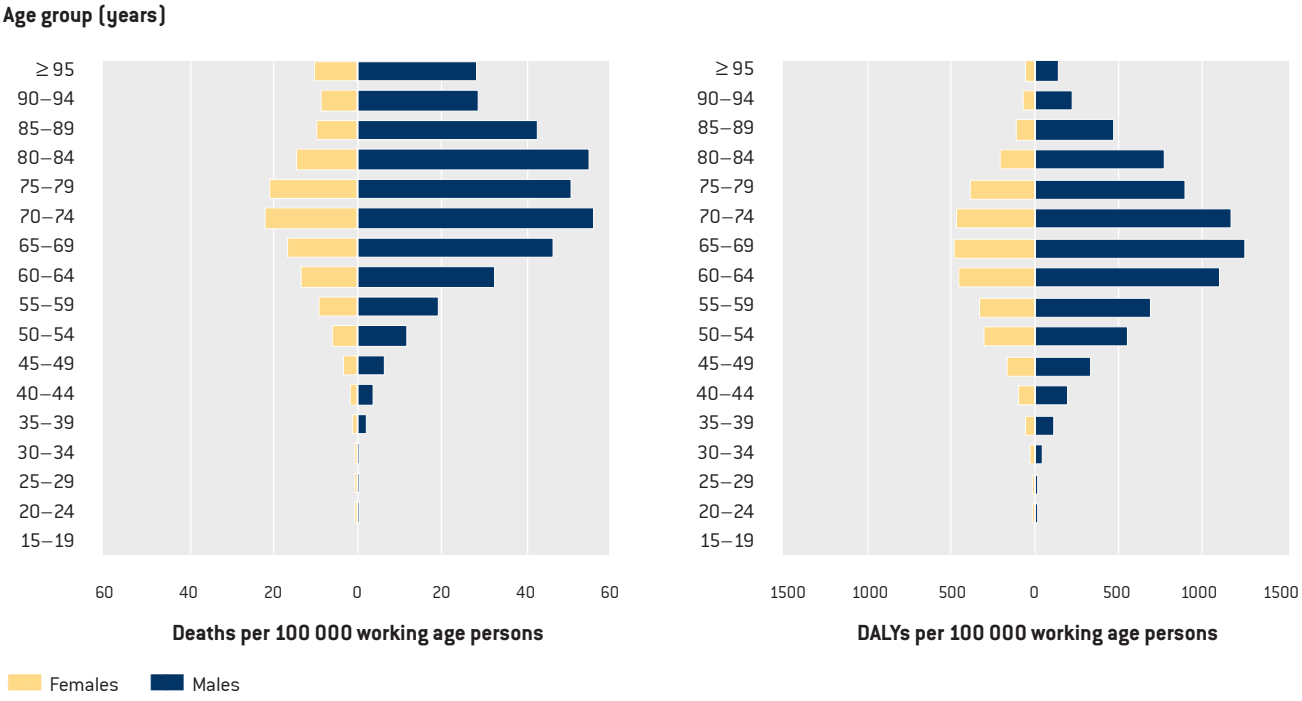
This burden of stroke is disproportionately high among males and people of older working age or old age (Fig. 29). Of these deaths, 69.3% (276 036) were males and 30.7% (122 270) were females (Fig. 29). Of these DALYs, 68.5% (8.63 million) were lost among males and 31.5% (3.97 million) were lost among females (Fig. 29). The highest death rates were observed for the age group 70–74 years in both sexes (56.2 per 100 000 working-age males and 21.5 per 100 000 working-age females), and the highest DALY rates were found for the age group 65–69 years in both sexes (1256.2 per 100 000 working-age males and 470.7 per 100 000 working-age females).

4.3.2. Exposure to long working hours: ischaemic heart disease

It is estimated that, globally in 2016, 346 618 deaths and 10.66 million DALYs as a result of ischaemic heart disease were attributable to exposure to long working hours (≥ 55 hours per week). Of the total envelope of global burden of ischaemic heart disease, 3.7% (346 618/9 401 800; Annex 1) of deaths and 5.3% (10.66 million/202.8 million) of DALYs were attributable to exposure to long working hours (total disease burden envelopes from the WHO Global Health Estimates *(26)*).The highest number of deaths from ischaemic heart disease attributable to exposure to long working hours was observed for the South-East Asia Region (159 824), and the lowest number in the African Region (16 920) (Annex 5). This was also reflected in the corresponding death rates: the highest of 11.3 deaths per 100 000 working-age population was observed in the South-East Asia Region and the lowest of 2.9 in the African Region (Annex 5).

Regionally, the highest number of DALYs as a result of ischaemic heart disease attributable to exposure to long working hours was observed for the South-East Asia Region (5.09 million), and the lowest for the African Region (0.49 million) (Annex 5). This pattern was also observed in the DALY rates: the highest of 361.2 DALYs per 100 000 working-age population was estimated for the South-East Asia Region, and the lowest of 84.8 for the African Region (Annex 5).

FIGURE 29
RATES OF TOTAL DEATHS (LEFT) AND DALYS (RIGHT) (NUMBER PER 100 000 WORKING-AGE POPULATION, I.E. AGE ≥ 15 YEARS) FROM STROKE ATTRIBUTABLE TO EXPOSURE TO LONG WORKING HOURS (≥ 55 HOURS PER WEEK), BY SEX AND AGE GROUP, 183 COUNTRIES, FOR THE YEAR 2016



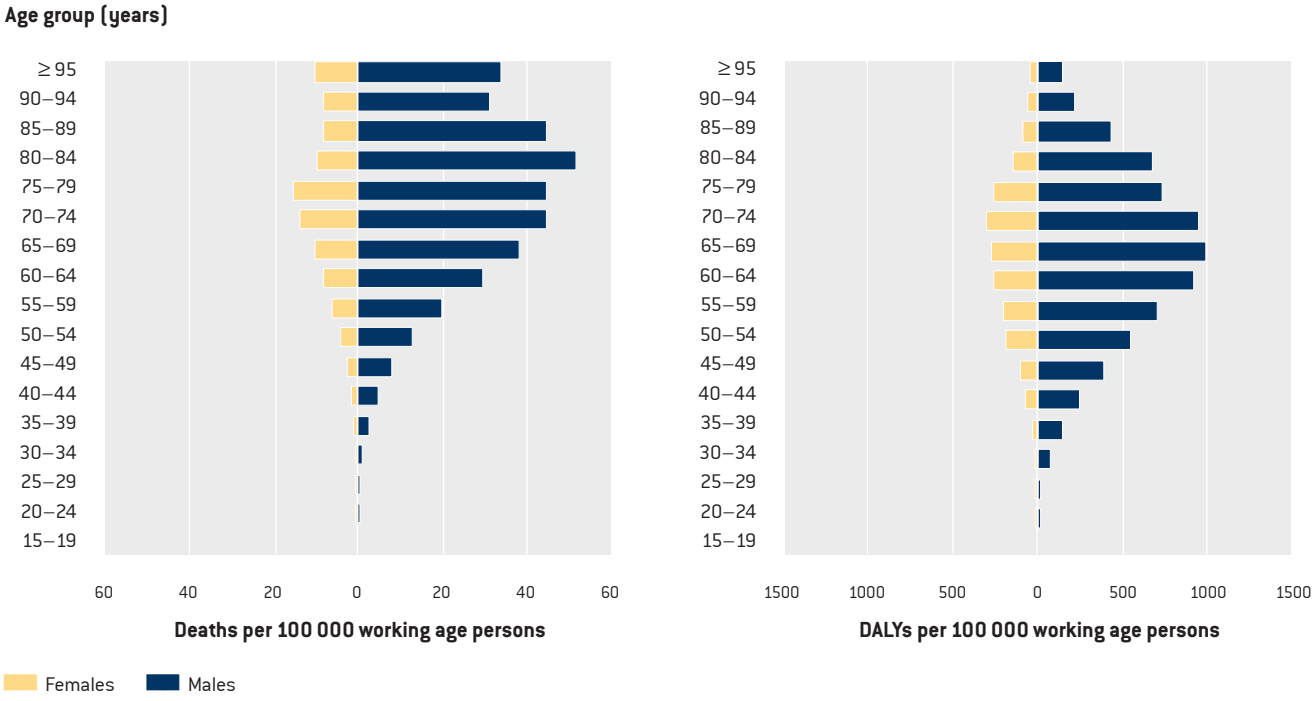
This disease burden is disproportionately high among males and older age groups. Three quarters of these deaths (75.8%; 262 713) and DALYs (76.5%; 8.16 million) occurred among males (Fig. 30). The highest death rates among males were observed for the age group 80–84 years (51.3 per 100 000 working-age males). Among females, those aged 75–79 years had the largest burden (15.7 per 100 000 working-age females). The highest DALY rates were seen for the age groups 65–69 years in males (989.3 per 100 000 working-age males) and 70–74 years in females (298.2 per 100 000 working-age females).

4.3.3. Preventive actions

ILO Conventions 1 (85) and 30 (86), ratified by 52 and 30 countries, respectively, define the maximum limits of working hours in industrial and services sectors. The weekly average of working hours should not exceed 48 hours per week, with some specific exceptions outlined in the conventions. Ratification of these conventions and the implementation of their principles are fundamental to ensure a legal framework limiting working hours. Other ILO conventions and recommendations on working time (holidays, weekly rest, reduction of working hours, etc.) also support risk management and the setting, implementing, monitoring and enforcement of the maximum limits of working hours.

Human resources management and work organization management can be used to prevent exposure to long working hours. An adequate balance between working and personal life is important to manage the risk of exposure to long working hours, particularly with some specific working modalities (e.g. teleworking, the self-employment and freelancing) *(87)*.

FIGURE 30
RATES OF TOTAL DEATHS (LEFT) AND DALYS (RIGHT) (NUMBER PER 100 000 WORKING-AGE POPULATION, I.E. AGE ≥ 15 YEARS) FROM ISCHAEMIC HEART DISEASE ATTRIBUTABLE TO EXPOSURE TO LONG WORKING HOURS (≥ 55 HOURS PER WEEK), BY SEX AND AGE GROUP, 183 COUNTRIES, FOR THE YEAR 2016



Occupational health services can play an important role in public health strategies to prevent exposure to long working hours *(88)*. All workers should be covered by these services (89) and regular occupational health assessments for workers should include consideration of numbers of working hours, as well as the other cardiovascular risk factors (e.g. obesity, physical activity, smoking and diet) that exposure to long working hours could increase the risk of.

The introduction of social protection floors will benefit disadvantaged workers, including those in the informal economy, which includes vulnerable groups such as children, pregnant women, older people and migrant workers *(90)*. Provision of income through social protection to cover basic living can enable workers to stop working unhealthy long hours.

4.4. Trends over time

In absolute terms, the global number of work-related deaths from 2000 to 2016 increased by 177 914. This trend was driven by exposure to long working hours, which contributed the largest increase (an increase of 165 356 deaths globally). Occupational injuries contributed the largest reduction (a decrease of 32 591 deaths globally). The global number of work-related DALYs increased by 9.67 million from 2000 to 2016, the greatest proportion of which resulted from exposure to long working hours (an additional 5.36 million DALYs). The number of DALYs as a result of occupational injuries fell by 1.11 million from 2000 to 2010.

However, in terms of rates, between 2000 and 2016 the global rates of total deaths attributable to exposure to occupational risk factors decreased from 39.9 to 34.3 deaths per 100 000 working-age population; this was a decrease of 5.7 deaths per 100 000 working-age population or by 14.2%. Similarly, the global rates of total DALYs attributable to exposure to occupational risk factors decreased from 1878.4 to 1635.9 DALYs per 100 000 working-age population; this was a decrease of 242.5 DALYs per 100 000 working-age population or 12.9%. This shows a substantial reduction in the total work-related burden of disease per head of population over the 16-year period.

The changes (in absolute and relative terms) over the period in terms of pairs of occupational risk factor and health outcome are provided in Sections 4.2 and 4.3 and are derivable from the data in Annex 2. For working-age population death rates, the largest relative increase in rates of 223.8% was seen for occupational exposure to trichloroethylene and kidney cancer (although this was only an absolute increase of 0.0003 deaths per 100 000 working-age population, or only 19 deaths globally). The greatest relative decrease in rates was observed from poisoning by other means attributable to occupational injuries, which fell by 60.5% from 2000 to 2016.

In terms of DALYs, the largest relative increase (by 45.8%) in working-age population rates between 2000 and 2016 was observed for occupational exposure to trichloroethylene and kidney cancer (although only an absolute increase of 0.01 DALYs per 100 000 working-age population). The largest relative decrease was observed in DALYs lost from poisoning by carbon monoxide attributable to occupational injuries, which fell by 59.6%.

4.5. Inequalities in work-related burden of disease

To improve workers' health equity between and within countries, health inequalities must be monitored. The WHO/ILO Joint Estimates are produced disaggregated by region, allowing monitoring of regional inequalities to address between-region differences (Annex 3). They are also produced disaggregated by sex and age group, allowing monitoring of inequalities in workers' health by these two variables.

4.5.1 By geographic region

In absolute terms, the WHO South-East Asia Region and the Western Pacific Region had death rates higher than the global rate, whereas the WHO African Region, Region of the Americas, European Region and the Eastern Mediterranean Region had death rates lower than the global rate. These absolute differences in the rates by WHO region, compared with the global rate, ranged from 10.7 deaths per 100 000 working-age population in South-East Asia to −12.0 deaths per 100 000 working-age population in the Americas (Fig. 31). The relative inequalities (as measured with the ratios of regional rates to the global rate) were highest for South-East Asia (1.3) and lowest for the Americas (0.7; Fig. 31).

For DALYs, in absolute terms, the WHO African Region, South-East Asia Region and Western Pacific Region had DALY rates higher than the global rate (Fig. 32), whereas the WHO Region of the Americas, the European Region and the Eastern Mediterranean Region had rates lower than the global rate. These rate differences by WHO region ranged from 463.3 DALYs per 100 000 working-age population in South-East Asia to −564.1 DALYs per 100 000 working-age population in the Americas (Fig. 32). The rate ratios varied from 1.3 for South-East Asia to 0.7 for the Americas.

FIGURE 31
RATE DIFFERENCE AND RATE RATIO OF TOTAL DEATHS (COMPARED WITH THE GLOBAL DEATH RATE OF 34.3) ATTRIBUTABLE TO THE 41 PAIRS OF OCCUPATIONAL RISK FACTOR AND HEALTH OUTCOME, BY REGION, 183 COUNTRIES, FOR THE YEAR 2016

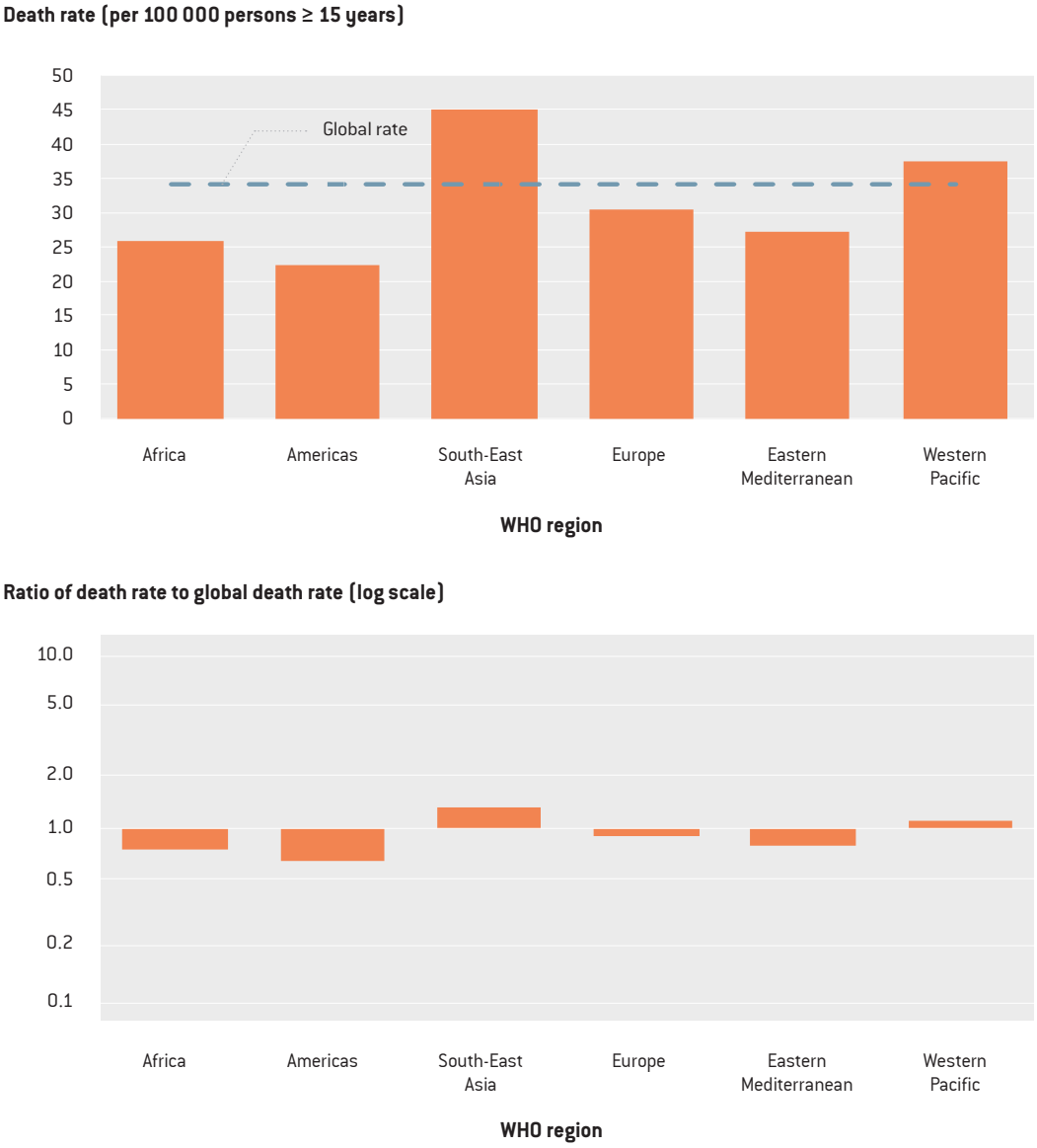
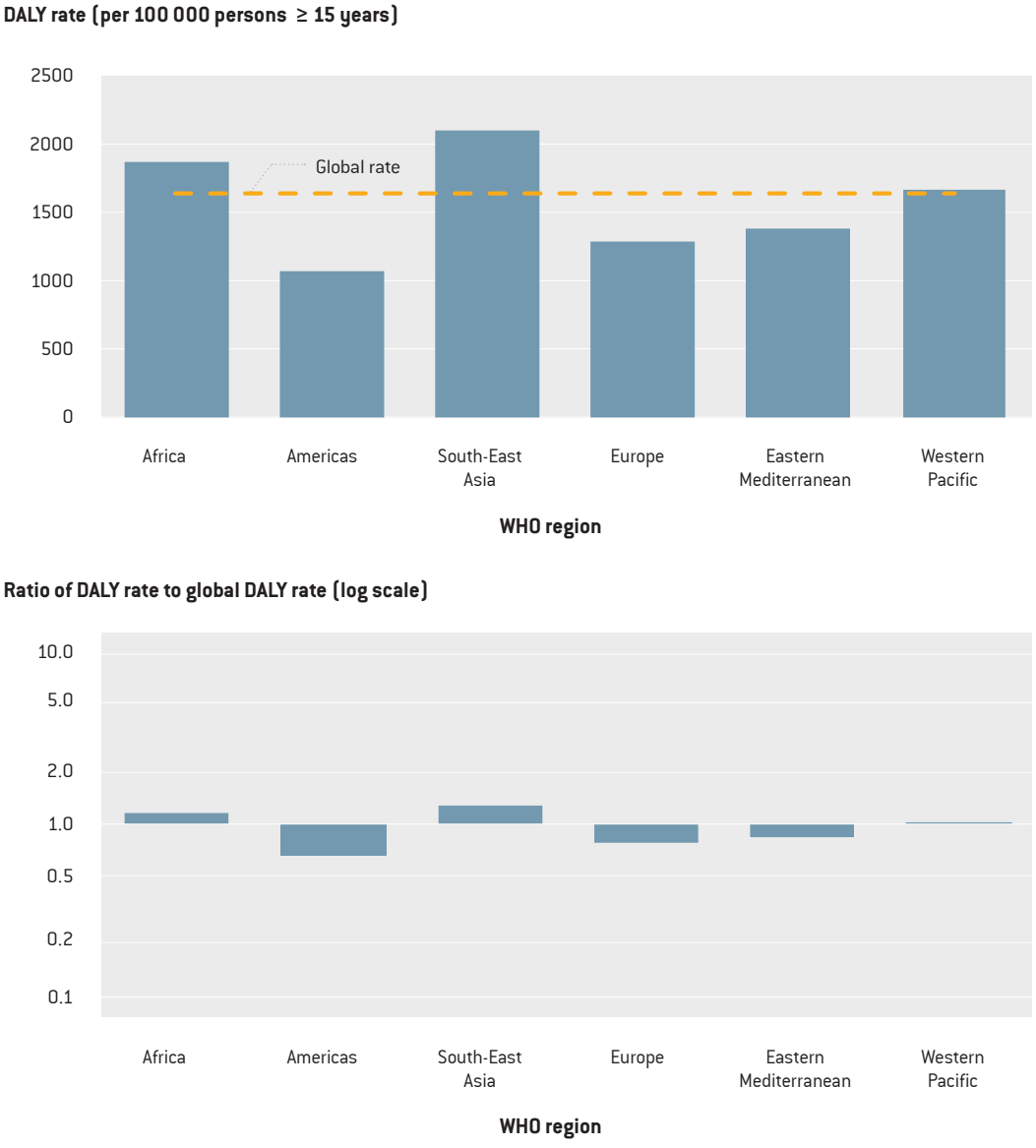


FIGURE 32
RATE DIFFERENCE AND RATE RATIO OF TOTAL ATTRIBUTABLE DALYS (COMPARED WITH THE GLOBAL DALY RATE OF 1635.9) ATTRIBUTABLE TO THE 41 PAIRS OF OCCUPATIONAL RISK FACTOR AND HEALTH OUTCOME, BY REGION, 183 COUNTRIES, FOR THE YEAR 2016



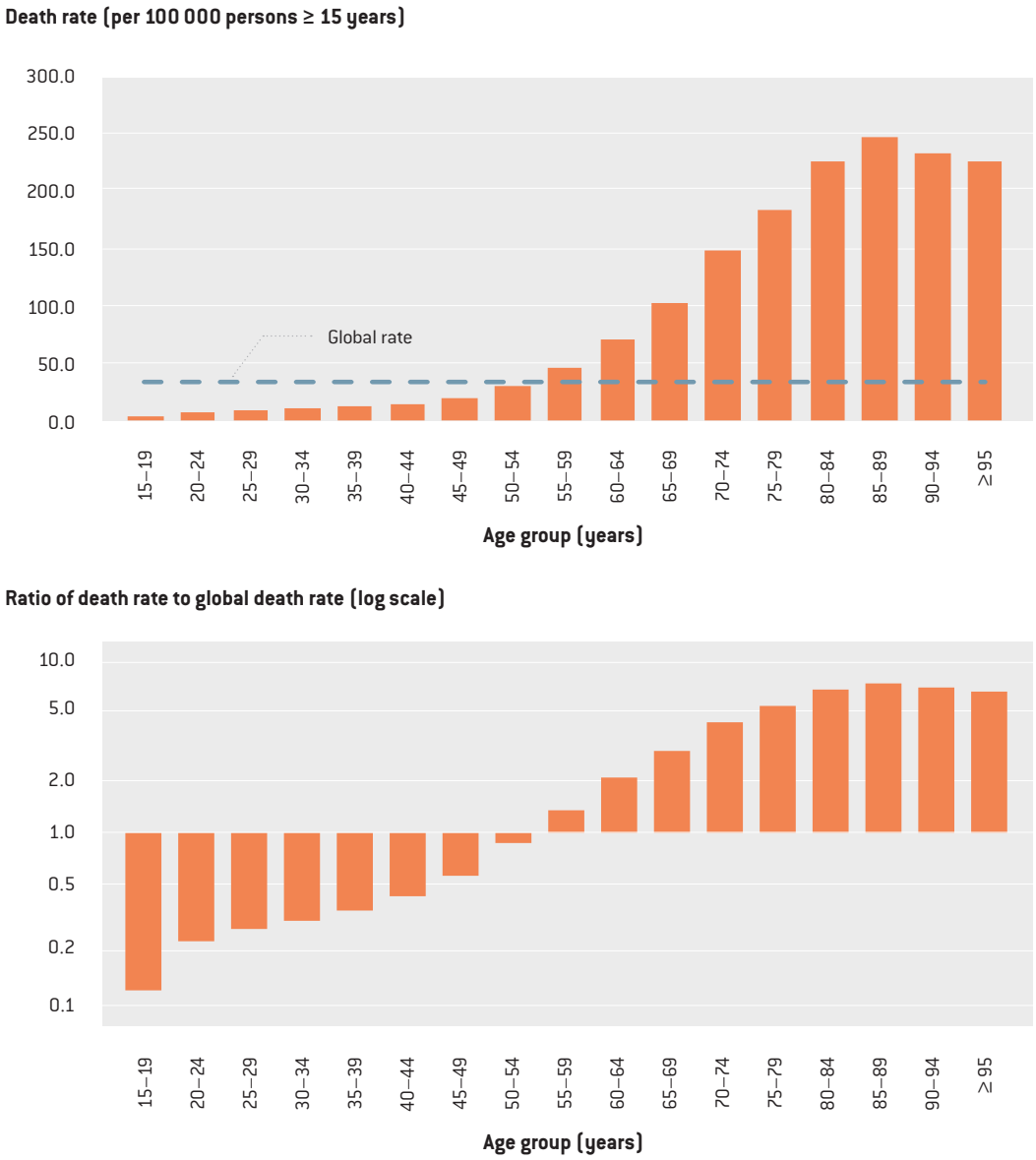
4.5.2. By sex

The death rate per 100 000 working-age males was 51.4. Compared with the rate for both sexes (34.3 per 100 000 working-age population), this is 17.1 per 100 000 higher (rate difference) and 1.5 times this rate (rate ratio). The death rate of 17.2 per 100 000 working-age females was lower; compared with the rate for both sexes, this is 17.1 per 100 000 lower and 0.5 times this rate. Similarly, the DALY rate per 100 000 working-age males was 2361.1. Compared with the rate for both sexes (1635.9 per 100 000 working-age population), this is 752.2 per 100 000 higher and 1.4 times this rate. The DALY rate per 100 000 working age females (911.2) is 724.7 per 100 000 lower and 0.6 times the rate for both sexes.

4.5.3. By age group

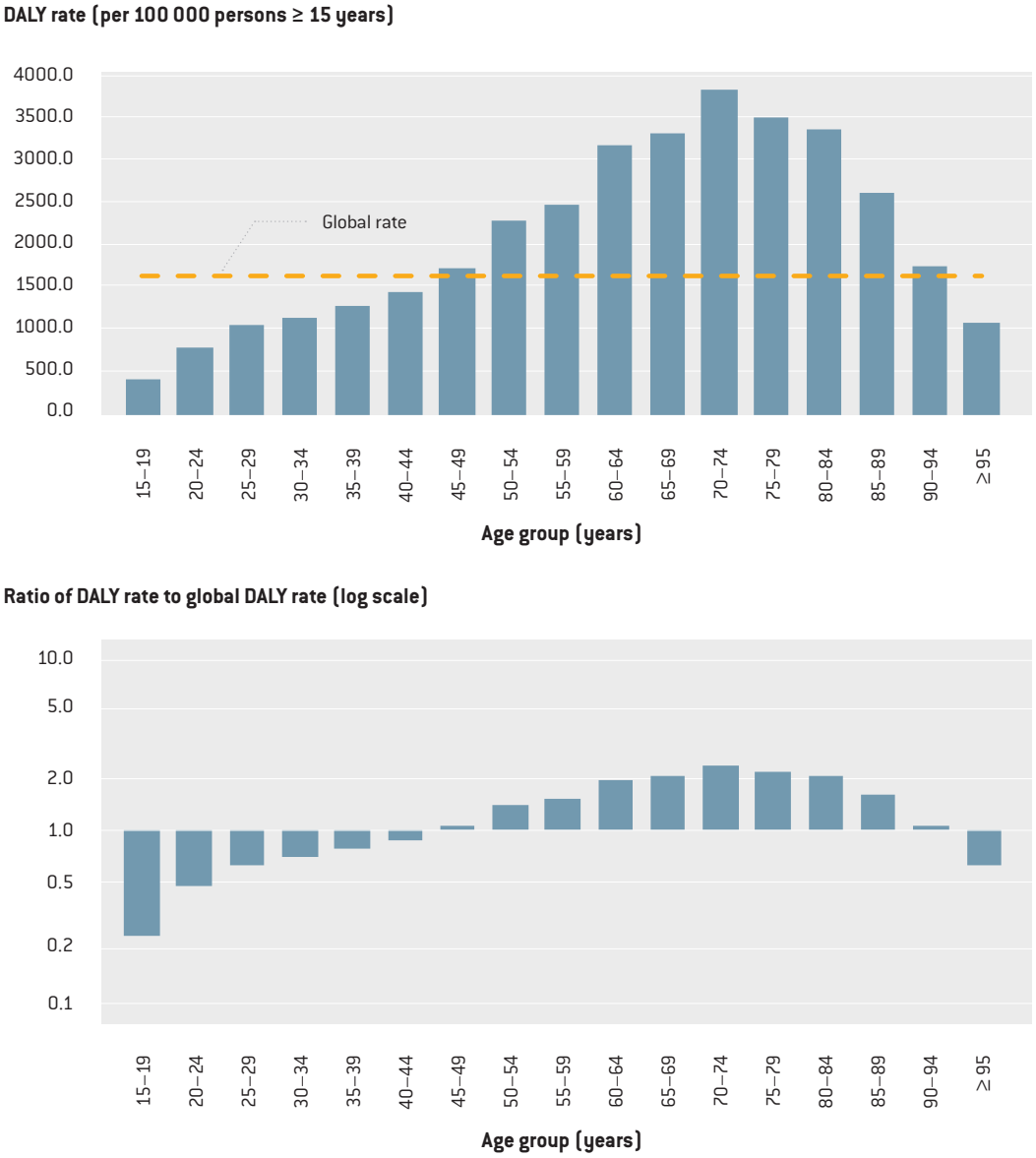
Older age groups carry a greater work-related burden of disease than younger age groups. For death rates, both rate differences and rate ratios were higher for older age groups from the age group 55–59 years, and lower for younger age groups (Fig. 33). Older age groups carried disproportionally greater disease burden, with the age group 85–89 years having the highest rate difference (higher than the global rate by 212.6 deaths per 100 000 working-age population) and highest risk ratio (7.2). The rate for the age group 15–19 years was 4.3 deaths per 100 000 working-age population, yielding a rate difference of –30.0 and a rate ratio of 0.1 (compared with a global rate of 34.3 per 100 000 working-age population).

FIGURE 33
RATE DIFFERENCE AND RATE RATIO OF TOTAL DEATHS (COMPARED WITH THE GLOBAL DEATH RATE OF 34.3 FOR WORKING-AGE POPULATION) ATTRIBUTABLE TO THE 41 PAIRS OF OCCUPATIONAL RISK FACTOR AND HEALTH OUTCOME, BY AGE GROUP, 183 COUNTRIES, FOR THE YEAR 2016

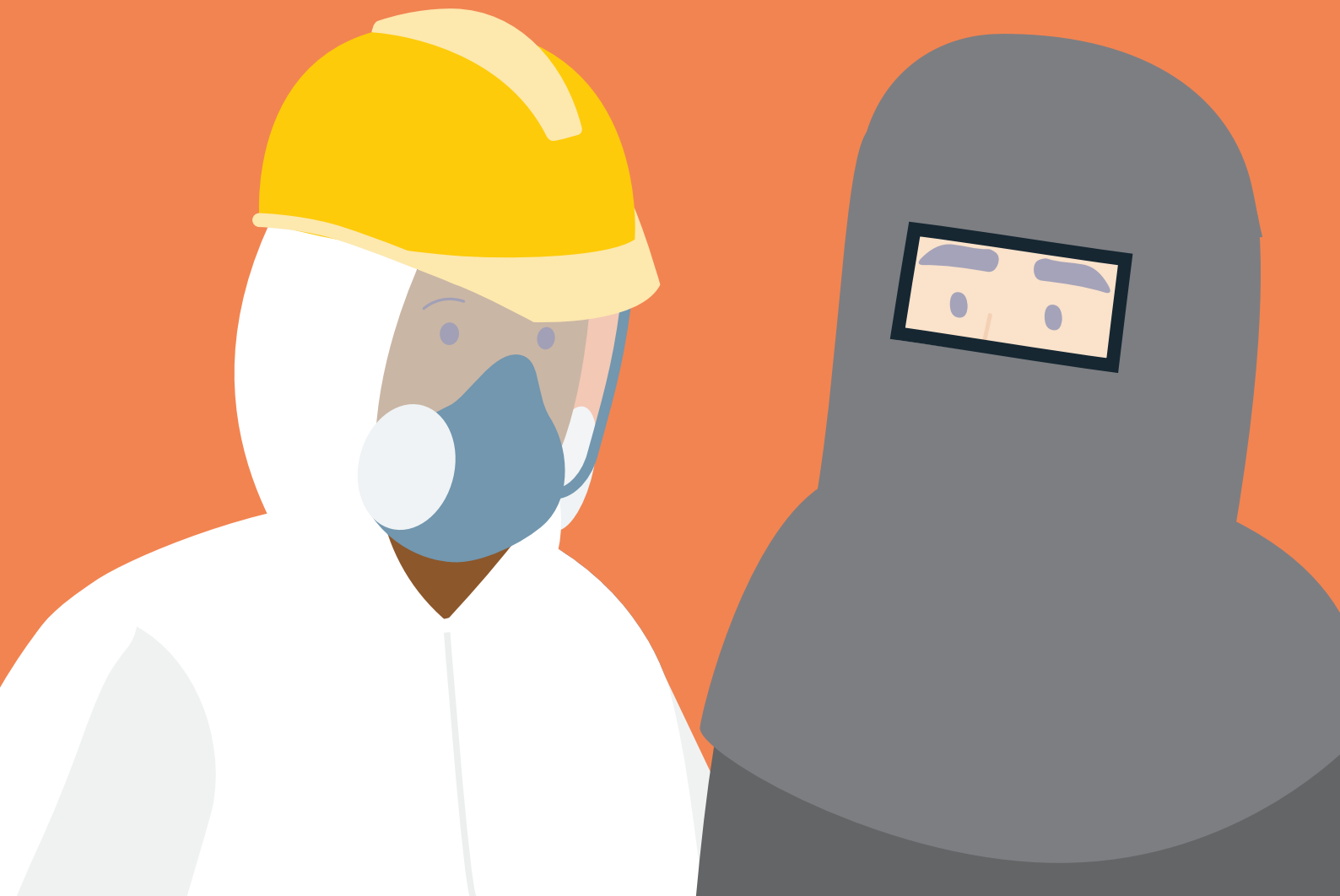


For DALY rates, both rate differences and rate ratios were higher than the global rate for older age groups from the age group 45–49 years (with the exception of the age group ≥ 95 years) and lower for younger age groups (Fig. 34). The older age groups were disproportionally more burdened, with the highest rate difference seen for the age group 70–74 years (higher than the global rate by 2167.4 DALYs per 100 000 working-age population) and with a rate ratio of 2.3. The rate difference for the age group 15–19 years was −1218.3 DALYs per 100 000 working-age population (compared with a global rate of 1635.9 per 100 000 working-age population) and the rate ratio was 0.3.

FIGURE 34
RATE DIFFERENCE AND RATE RATIO OF TOTAL DALYS (COMPARED WITH THE GLOBAL DALY RATE OF 1635.9 FOR WORKING-AGE POPULATION) ATTRIBUTABLE TO THE 41 PAIRS OF OCCUPATIONAL RISK FACTOR AND HEALTH OUTCOME, BY AGE GROUP, 183 COUNTRIES, FOR THE YEAR 2016



5. DISCUSSION



WHO and the ILO have produced the first set of the WHO/ILO Joint Estimates of the Work-related Burden of Disease and Injury (WHO/ILO Joint Estimates). The prevalence of some key occupational risk factors, and the burden of specific health outcomes attributable to these risk factors, has been quantified using multiple data sources from countries, areas and territories across all WHO and ILO regions. The WHO/ILO Joint Estimates of burden of disease are available to users at the global level as well as by region and country, and are available disaggregated by sex and age group. However, these estimates are not available at a subnational level. Additionally, it was not possible to produce disaggregated estimates by occupation, industrial sector and migration status at this stage. As more data become available, estimates with these additional breakdowns could be added if and when feasible.

These estimates are affected by several factors, including the source and quality of input data, and the type and complexity of the models of exposure and health estimates. The various approaches taken to collect and synthesize data have used information from a wide range of sources (e.g. systematic reviews and meta-analyses, and the global databases on exposure to long working hours). Estimates have been included only if the underlying body of evidence was judged to be of sufficient quality and strength. Some of the estimates are based on exposure data from limited sources and from areas of limited country and regional coverage. The estimates of burden of disease attributable to exposure to long working hours use direct measures of exposure data (2324 surveys conducted in 154 countries, areas and territories and 1742 quarterly datasets of Labour Force Surveys conducted in 46 countries), primarily collected by national statistics offices. More large-scale global official datasets of exposure to occupational risk factors, ideally from direct measurement or through strong proxies such as occupation and industrial sector, are needed to further improve the accuracy of estimates of the work-related burden of disease. Similarly, to more accurately quantify risks of health outcomes from exposure to occupational risk factors for the occupational burden of disease estimation, we also need more primary studies to be conducted on the effect of exposure to occupational risk factors on health outcomes, as well as additional and well conducted systematic reviews and meta-analyses *(30)*. In particular, data and evidence from low- and middle-income countries are needed, and will substantially advance work-related burden of disease estimation.

Target 8.8 of the SDGs aims to "Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment" *(4)*, and indicator 8.8.1 refers to the "frequency rates of fatal and non-fatal occupational injuries". However, injuries accounted for only 19.3% (363 283/1 798 890) of deaths and 29.5% (26.44 million/89.72 million) of DALYs attributable to occupational risk factors in 2016. From the new WHO/ILO Joint Estimates, an additional, complementary indicator for Target 8.8, quantifying the burden of deaths from diseases attributable to exposure to occupational risk factors, could be produced *(91, 92)*. Estimates can support Member States reporting on indicator 8.8.1, especially where dedicated reporting systems for such deaths may not yet exist.

It must be noted that not all occupational risk factors and attributable burdens of disease have yet been quantified. The production of estimates for some pairs was not possible in this estimation cycle, such as: occupational exposure to biological risk factors and infectious diseases; occupational exposure to psycho-social risk factors and mental health outcomes; and occupational exposure to ambient air pollution and its various health outcomes. The inclusion of such additional pairs during the next round of estimate production will greatly broaden the scope of these estimates and capture more of the work-related burden of disease.

GLOBAL MONITORING REPORT

6. CONCLUSION

This first Global Monitoring Report found that in 2016 1.88 million deaths and 89.72 million DALYs were estimated to be attributable to the 41 selected pairs of occupational risk factor and health outcome covered. Diseases accounted for 80.7% (1.52 million) of the deaths and 70.5% (63.28 million) of the DALYs, and injuries accounted for 19.3% (0.36 million) of the deaths and 29.5% (26.44 million) of the DALYs. The occupational risk factor with the largest number of attributable deaths was exposure to long working hours (≥ 55 hours per week) (744 924 deaths), followed by occupational exposure to particulate matter, gases and fumes (450 381 deaths) and occupational injuries (363 283 deaths). The health outcome with the largest work-related burden of deaths was chronic obstructive pulmonary disease (450 381 deaths), followed by stroke (398 306 deaths) and ischaemic heart disease (346 618 deaths). A disproportionately large work-related burden of disease is observed in the WHO African Region, South-East Asia Region and the Western Pacific Region, males and older age groups.

For the effect of occupational risk factors on various health outcomes to be understood, quantification of the attributable burden of disease is vital. The WHO/ILO Joint Estimates will result in regular and harmonized, interagency monitoring of the work-related burden of disease, at the national, regional and global levels. Countries can benefit from accurate and transparent estimates produced by providers of official statistics, and based on the latest available data. As well as facilitating the detection of trends over time, these sex- and age-disaggregated estimates also enable: the identification of occupational risk factors and diseases to prioritize; the monitoring of between- and within-country inequalities in work-related burden of disease; the evaluation of existing policies and actions; and the development of evidence-based improvements in occupational and workers' health and safety policy and practices. However, burden of disease estimates should not be used in isolation for prioritization of action.

Through the development of new methodologies for estimating the work-related burden of disease, including systematic reviews on the prioritized additional pairs of occupational risk factor and health outcome, we have widened the scope of the Global Comparative Risk Assessment and strengthened the global capacity for modelling disease burden in occupational health. The WHO/ILO Joint Estimates allow the global monitoring of exposure to occupational risk factors and the work-related burden of disease, enabling policy-makers and health institutions to plan, cost, implement and evaluate actions to prevent exposure to occupational risk factors and their associated burdens of disease and injury.

GLOBAL MONITORING REPORT

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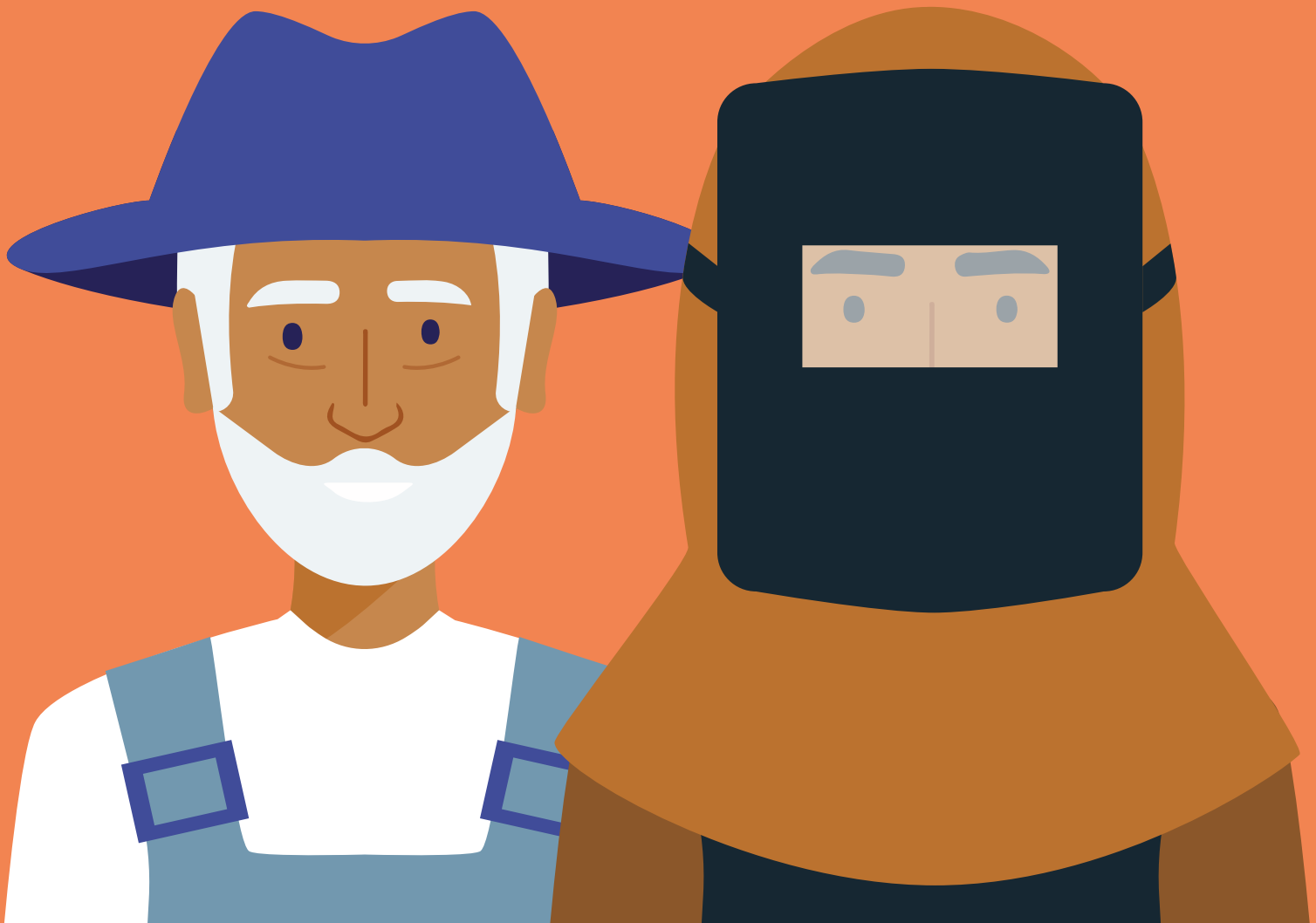
GLOBAL MONITORING REPORT

ANNEXES



ANNEX 1

POPULATION ATTRIBUTABLE FRACTIONS FOR DEATHS AND DALYS, BY PAIR OF OCCUPATIONAL RISK FACTOR AND HEALTH OUTCOME, GLOBALLY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

Occupational risk factor	Health outcome	Population attributable fractions for deaths			Population attributable fractions for DALYs		
		2000	2010	2016	2000	2010	2016
Exposure to asbestos	Trachea, bronchus and lung cancers	11.04	10.89	10.48	8.71	8.37	8.06
Exposure to asbestos	Ovary cancer	3.77	3.60	3.35	1.25	1.13	1.05
Exposure to asbestos	Larynx cancer	3.56	3.68	3.61	2.81	2.80	2.75
Exposure to asbestos	Mesothelioma	88.40	91.54	91.45	83.28	86.84	86.73
Exposure to arsenic	Trachea, bronchus and lung cancers	0.45	0.44	0.45	0.57	0.57	0.58
Exposure to benzene	Leukaemia	0.54	0.54	0.55	0.94	0.95	1.00
Exposure to beryllium	Trachea, bronchus and lung cancers	0.01	0.01	0.01	0.02	0.02	0.02
Exposure to cadmium	Trachea, bronchus and lung cancers	0.02	0.03	0.03	0.04	0.04	0.04
Exposure to chromium	Trachea, bronchus and lung cancers	0.05	0.06	0.06	0.07	0.08	0.09
Exposure to diesel engine exhaust	Trachea, bronchus and lung cancers	0.73	0.82	0.87	0.94	1.07	1.15
Exposure to formaldehyde	Nasopharynx cancer	0.59	0.60	0.61	0.98	0.97	0.97
Exposure to formaldehyde	Leukaemia	0.16	0.15	0.16	0.34	0.33	0.34
Exposure to nickel	Trachea, bronchus and lung cancers	0.44	0.43	0.43	0.56	0.56	0.56
Exposure to polycyclic aromatic hydrocarbons	Trachea, bronchus and lung cancers	0.19	0.22	0.23	0.26	0.29	0.31
Exposure to silica	Trachea, bronchus and lung cancers	2.56	2.48	2.49	3.18	3.16	3.20
Exposure to sulphuric acid	Larynx cancer	2.71	2.75	2.80	3.43	3.56	3.62
Exposure to trichloroethylene	Kidney cancer	0.01	0.01	0.02	0.05	0.06	0.06
Occupational asthmagens	Asthma	8.00	7.74	7.35	10.92	11.00	10.81
Occupational particulate matter, gases and fumes	Chronic obstructive pulmonary disease	16.01	15.23	14.87	15.86	15.32	15.14
Occupational noise	Other hearing loss	0.00	0.00	0.00	18.67	18.41	18.24
Occupational injuries	Pedestrian road injuries	20.03	15.84	15.18	23.10	18.92	18.70
Occupational injuries	Cyclist road injuries	22.88	17.17	16.66	23.82	19.01	19.00
Occupational injuries	Motorcyclist road injuries	24.94	19.71	19.25	25.06	20.11	19.98
Occupational injuries	Motor vehicle road injuries	19.58	17.54	17.37	20.52	18.76	18.96
Occupational injuries	Other road injuries	20.20	16.55	16.01	22.72	19.35	19.14
Occupational injuries	Other transport injuries	20.37	16.66	15.80	23.20	18.84	18.20
Occupational injuries	Poisoning by carbon monoxide	16.65	12.13	11.36	20.27	15.98	15.92
Occupational injuries	Poisoning by other means	19.31	14.05	12.70	21.45	16.80	16.24
Occupational injuries	Falls	9.25	6.60	5.74	14.79	11.95	11.38
Occupational injuries	Fire, heat and hot substances	11.68	9.34	8.93	14.68	12.73	13.06

ANNEX 1 (Contd.)

POPULATION ATTRIBUTABLE FRACTIONS FOR DEATHS AND DALYS, BY PAIR OF OCCUPATIONAL RISK FACTOR AND HEALTH OUTCOME, GLOBALLY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

Occupational risk factor	Health outcome	Population attributable fractions for deaths			Population attributable fractions for DALYs		
		2000	2010	2016	2000	2010	2016
Occupational injuries	Drowning	16.99	14.02	13.50	19.32	16.67	16.70
Occupational injuries	Unintentional firearm injuries	18.83	16.50	15.24	23.15	20.84	19.95
Occupational injuries	Other exposure to mechanical forces	18.17	14.35	13.77	20.25	17.15	17.00
Occupational injuries	Pulmonary aspiration and foreign body in airway	7.51	5.98	5.55	14.18	12.73	12.59
Occupational injuries	Foreign body in other body part	8.77	6.76	6.43	18.10	15.82	16.08
Occupational injuries	Non-venomous animal contact	14.38	11.07	10.84	19.61	16.07	15.78
Occupational injuries	Venomous animal contact	13.39	9.18	8.62	18.73	13.41	12.96
Occupational injuries	Other unintentional injuries	20.06	16.73	16.02	20.19	16.58	15.90
Occupational ergonomic factors	Back and neck pain	0.00	0.00	0.00	28.59	27.40	26.38
Long working hours	Ischaemic heart disease	3.50	3.61	3.69	4.83	5.08	5.26
Long working hours	Stroke	6.53	6.78	6.93	8.65	9.03	9.29

DALYs, disability-adjusted life years.

ANNEX 2

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATHS AND DALYS PER 100 000 WORKING-AGE POPULATION (≥ 15 YEARS) AND TOTAL POPULATION (ALL AGES), BY PAIR OF OCCUPATIONAL RISK FACTOR AND HEALTH OUTCOME, GLOBALLY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

Occupational risk factor	Health outcome	No. deaths per pair			No. deaths per pair per 100 000 population (≥ 15 years)			No. deaths per pair per 100 000 population (all ages)			No. DALYs per pair			No. DALYs per pair per 100 000 population (≥ 15 years)			No. DALYs per pair per 100 000 population (all ages)		
		2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Exposure to asbestos	Trachea, bronchus and lung cancers	137 786	169 697	177 614	3.2	3.4	3.2	2.3	2.5	2.4	2 804 297	3 197 063	3 286 180	65.8	63.4	59.9	45.9	46.2	44.3
Exposure to asbestos	Ovary cancer	4 519	5 214	5 464	0.1	0.1	0.1	0.1	0.1	0.1	91 953	99 889	104 297	2.2	2.0	1.9	1.5	1.4	1.4
Exposure to asbestos	Larynx cancer	2 933	3 079	3 299	0.1	0.1	0.1	0.0	0.0	0.0	67 006	66 073	69 564	1.6	1.3	1.3	1.1	1.0	0.9
Exposure to asbestos	Mesothelioma	12 703	20 567	23 104	0.3	0.4	0.4	0.2	0.3	0.3	327 763	476 621	513 810	7.7	9.4	9.4	5.4	6.9	6.9
Exposure to arsenic	Trachea, bronchus and lung cancers	5 651	6 893	7 589	0.1	0.1	0.1	0.1	0.1	0.1	183 316	218 684	236 361	4.3	4.3	4.3	3.0	3.2	3.2
Exposure to benzene	Leukaemia	1 175	1 304	1 452	0.0	0.0	0.0	0.0	0.0	0.0	73 681	76 947	85 022	1.7	1.5	1.6	1.2	1.1	1.1
Exposure to beryllium	Trachea, bronchus and lung cancers	101	138	165	0.0	0.0	0.0	0.0	0.0	0.0	4 971	6 442	7 181	0.1	0.1	0.1	0.1	0.1	0.1
Exposure to cadmium	Trachea, bronchus and lung cancers	279	392	452	0.0	0.0	0.0	0.0	0.0	0.0	11 696	15 292	17 172	0.3	0.3	0.3	0.2	0.2	0.2
Exposure to chromium	Trachea, bronchus and lung cancers	620	884	1 022	0.0	0.0	0.0	0.0	0.0	0.0	23 888	31 779	36 059	0.6	0.6	0.7	0.4	0.5	0.5
Exposure to diesel engine exhaust	Trachea, bronchus and lung cancers	9 116	12 709	14 728	0.2	0.3	0.3	0.1	0.2	0.2	303 473	410 674	470 650	7.1	8.1	8.6	5.0	5.9	6.3
Exposure to formaldehyde	Nasopharynx cancer	263	294	327	0.0	0.0	0.0	0.0	0.0	0.0	16 082	16 894	18 056	0.4	0.3	0.3	0.3	0.2	0.2
Exposure to formaldehyde	Leukaemia	350	372	416	0.0	0.0	0.0	0.0	0.0	0.0	26 657	26 912	29 143	0.6	0.5	0.5	0.4	0.4	0.4
Exposure to nickel	Trachea, bronchus and lung cancers	5 449	6 641	7 301	0.1	0.1	0.1	0.1	0.1	0.1	178 881	212 860	229 980	4.2	4.2	4.2	2.9	3.1	3.1
Exposure to polycyclic aromatic hydrocarbons	Trachea, bronchus and lung cancers	2 428	3 364	3 881	0.1	0.1	0.1	0.0	0.0	0.1	84 081	111 823	126 900	2.0	2.2	2.3	1.4	1.6	1.7
Exposure to silica	Trachea, bronchus and lung cancers	31 910	38 608	42 258	0.7	0.8	0.8	0.5	0.6	0.6	1 022 981	1 207 501	1 302 917	24.0	23.9	23.8	16.8	17.5	17.6
Exposure to sulphuric acid	Larynx cancer	2 227	2 303	2 564	0.1	0.0	0.0	0.0	0.0	0.0	81 783	83 960	91 636	1.9	1.7	1.7	1.3	1.2	1.2
Exposure to trichloroethylene	Kidney cancer	6	18	25	0.0	0.0	0.0	0.0	0.0	0.0	1 249	1 877	2 343	0.0	0.0	0.0	0.0	0.0	0.0
Occupational asthmagens	Asthma	35 293	30 568	29 641	0.8	0.6	0.5	0.6	0.4	0.4	2 106 628	2 050 770	2 104 429	49.4	40.6	38.4	34.5	29.7	28.4
Occupational particulate matter, gases and fumes	Chronic obstructive pulmonary disease	473 725	431 992	450 381	11.1	8.6	8.2	7.8	6.2	6.1	11 053 935	10 335 238	10 855 103	259.4	204.8	197.9	181.1	149.5	146.3
Occupational noise	Other hearing loss	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	5 917 732	7 280 576	8 164 140	138.9	144.3	148.9	97.0	105.3	110.0
Occupational injuries	Pedestrian road injuries	78 790	72 032	72 157	1.8	1.4	1.3	1.3	1.0	1.0	4 547 165	4 214 378	4 244 768	106.7	83.5	77.4	74.5	61.0	57.2
Occupational injuries	Cyclist road injuries	10 915	10 521	12 018	0.3	0.2	0.2	0.2	0.2	0.2	781 662	802 973	932 514	18.3	15.9	17.0	12.8	11.6	12.6
Occupational injuries	Motorcyclist road injuries	41 945	44 311	48 151	1.0	0.9	0.9	0.7	0.6	0.6	2 805 094	2 988 019	3 249 277	65.8	59.2	59.2	46.0	43.2	43.8
Occupational injuries	Motor vehicle road injuries	67 879	70 268	76 946	1.6	1.4	1.4	1.1	1.0	1.0	4 120 501	4 261 916	4 639 833	96.7	84.5	84.6	67.5	61.6	62.5
Occupational injuries	Other road injuries	1 764	1 807	1 859	0.0	0.0	0.0	0.0	0.0	0.0	172 682	198 907	231 259	4.1	3.9	4.2	2.8	2.9	3.1
Occupational injuries	Other transport injuries	21 597	17 797	16 864	0.5	0.4	0.3	0.4	0.3	0.2	1 868 380	1 587 934	1 584 940	43.8	31.5	28.9	30.6	23.0	21.4

ANNEX 2 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATHS AND DALYS PER 100 000 WORKING-AGE POPULATION (≥ 15 YEARS) AND TOTAL POPULATION (ALL AGES), BY PAIR OF OCCUPATIONAL RISK FACTOR AND HEALTH OUTCOME, GLOBALLY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

Occupational risk factor	Health outcome	No. deaths per pair			No. deaths per pair per 100 000 population (≥ 15 years)			No. deaths per pair per 100 000 population (all ages)			No. DALYs per pair			No. DALYs per pair per 100 000 population (≥ 15 years)			No. DALYs per pair per 100 000 population (all ages)		
		2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Occupational injuries	Poisoning by carbon monoxide	7 408	4 249	3 772	0.2	0.1	0.1	0.1	0.1	0.1	411 082	239 498	213 606	9.6	4.7	3.9	6.7	3.5	2.9
Occupational injuries	Poisoning by other means	10 477	6 313	5 330	0.2	0.1	0.1	0.2	0.1	0.1	626 837	389 740	340 195	14.7	7.7	6.2	10.3	5.6	4.6
Occupational injuries	Falls	36 808	34 064	34 996	0.9	0.7	0.6	0.6	0.5	0.5	3 535 943	3 472 602	3 726 068	83.0	68.8	67.9	57.9	50.2	50.2
Occupational injuries	Fire, heat and hot substances	16 002	11 342	10 234	0.4	0.2	0.2	0.3	0.2	0.1	1 201 594	946 261	920 655	28.2	18.8	16.8	19.7	13.7	12.4
Occupational injuries	Drowning	33 135	26 779	26 281	0.8	0.5	0.5	0.5	0.4	0.4	1 956 331	1 559 372	1 530 312	45.9	30.9	27.9	32.1	22.6	20.6
Occupational injuries	Unintentional firearm injuries	6 348	5 477	5 079	0.1	0.1	0.1	0.1	0.1	0.1	424 086	357 843	344 830	10.0	7.1	6.3	6.9	5.2	4.6
Occupational injuries	Other exposure to mechanical forces	21 308	18 121	17 406	0.5	0.4	0.3	0.3	0.3	0.2	1 900 679	1 765 361	1 798 106	44.6	35.0	32.8	31.1	25.5	24.2
Occupational injuries	Pulmonary aspiration and foreign body in airway	8 470	7 942	7 831	0.2	0.2	0.1	0.1	0.1	0.1	420 613	383 236	380 882	9.9	7.6	6.9	6.9	5.5	5.1
Occupational injuries	Foreign body in other body part	794	635	649	0.0	0.0	0.0	0.0	0.0	0.0	163 163	149 381	165 778	3.8	3.0	3.0	2.7	2.2	2.2
Occupational injuries	Non-venomous animal contact	1 495	1 161	1 213	0.0	0.0	0.0	0.0	0.0	0.0	153 866	125 943	130 080	3.6	2.5	2.4	2.5	1.8	1.8
Occupational injuries	Venomous animal contact	9 261	6 535	6 359	0.2	0.1	0.1	0.2	0.1	0.1	647 679	484 024	478 692	15.2	9.6	8.7	10.6	7.0	6.5
Occupational injuries	Other unintentional injuries	21 478	17 860	16 138	0.5	0.4	0.3	0.4	0.3	0.2	1 812 672	1 600 309	1 528 257	42.5	31.7	27.9	29.7	23.1	20.6
Occupational ergonomic factors	Back and neck pain	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	10 214 925	11 342 041	12 267 159	239.7	224.8	223.7	167.4	164.1	165.3
Long working hours	Ischaemic heart disease	244 844	304 200	346 618	7.9	6.0	6.3	5.5	4.4	4.7	7 548 225	9 368 428	10 655 256	177.1	185.7	194.3	123.7	135.5	143.6
Long working hours	Stroke	334 724	366 524	398 306	5.7	7.3	7.3	4.0	5.3	5.4	10 352 978	11 471 221	12 603 247	242.9	227.4	229.8	169.6	165.9	169.9

DALYs, disability-adjusted life years.

ANNEX 3

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATH AND DALY PER 100 000 OF THE WORKING-AGE POPULATION (≥ 15 YEARS) AND THE TOTAL POPULATION (ALL AGES), GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

	No. deaths			No. deaths per 100 000 population (≥ 15 years)			No. deaths per 100 000 population (all ages)			No. DALYs			No. DALYs per 100 000 population (≥ 15 years)			No. DALYs per 100 000 population (all ages)		
	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Global	1 701 976	1 762 975	1 879 890	39.9	34.9	34.3	27.9	25.5	25.3	80 048 208	83 637 261	89 716 654	1 878.4	1 657.7	1 635.9	1 311.5	1 209.7	1 209.2
African Region	115 547	132 350	150 427	31.2	27.1	25.9	17.5	15.4	14.9	7 962 057	9 462 719	10 846 723	2 147.2	1 935.1	1 867.1	1 206.0	1 102.4	1 074.9
Region of the Americas	163 799	163 549	169 238	27.5	23.4	22.3	19.8	17.6	17.2	7 531 962	7 770 545	8 134 604	1 265.3	1 112.3	1 071.8	908.7	836.3	826.3
South-East Asia Region	503 777	565 746	634 096	48.3	44.6	45.0	32.0	31.2	32.7	24 613 276	26 699 718	29 573 376	2 362.1	2 104.2	2 099.2	1 564.9	1 470.7	1 522.8
European Region	251 306	239 935	229 262	36.2	32.5	30.4	29.0	26.8	24.9	10 709 047	10 081 919	9 631 762	1 543.3	1 365.2	1 276.9	1 236.4	1 125.8	1 047.8
Eastern Mediterranean Region	96 516	111 779	121 725	33.7	28.9	27.2	20.4	18.8	18.1	4 741 158	5 613 679	6 139 952	1 654.3	1 450.6	1 371.7	1 000.3	946.2	912.7
Western Pacific Region	571 031	549 616	575 142	44.9	37.6	37.5	33.6	30.2	30.4	24 490 708	24 008 682	25 390 237	1 924.0	1 640.6	1 655.5	1 439.5	1 317.9	1 342.0
Afghanistan	5 096	6 334	6 747	48.0	41.9	34.2	24.5	21.7	19.1	289 729	347 281	375 992	2 728.2	2 296.2	1 906.8	1 394.3	1 189.9	1 062.6
Albania	504	543	561	23.1	23.8	23.8	16.1	18.4	19.4	34 351	34 633	33 905	1 575.7	1 515.0	1 439.2	1 097.7	1 174.8	1 174.6
Algeria	5 067	5 160	5 630	24.9	19.7	19.6	16.3	14.3	13.9	264 668	293 440	318 879	1 299.0	1 121.6	1 109.6	852.6	815.6	786.4
Angola	2 906	2 715	3 274	33.6	21.9	21.4	17.7	11.6	11.4	188 819	184 452	219 226	2 181.2	1 491.2	1 435.6	1 151.7	789.7	760.1
Antigua and Barbuda	2	2	1	3.7	3.0	1.4	2.6	2.3	1.1	476	544	604	878.2	816.8	823.5	626.3	618.0	639.0
Argentina	9 851	9 885	9 478	37.3	32.7	29.1	26.7	24.2	21.8	442 118	453 774	464 847	1 676.2	1 500.2	1 426.1	1 199.1	1 109.6	1 068.4
Armenia	715	716	677	31.4	30.9	28.9	23.3	24.9	23.1	39 014	37 648	37 452	1 713.2	1 624.6	1 599.6	1 271.0	1 308.4	1 275.5
Australia	5 463	5 663	5 812	36.4	31.6	29.6	28.8	25.6	24.0	190 284	200 317	205 576	1 266.4	1 116.7	1 045.4	1 001.9	904.2	847.3
Austria	1 803	1 814	1 826	26.9	25.3	24.3	22.3	21.6	20.9	76 371	78 109	79 772	1 137.9	1 089.0	1 062.5	946.4	928.8	912.0
Azerbaijan	1 188	1 260	1 280	21.2	18.1	17.1	14.6	13.9	13.1	70 734	86 014	93 144	1 264.8	1 234.1	1 244.7	870.8	952.3	956.7
Bahamas	14	19	20	6.6	7.3	6.9	4.7	5.4	5.3	1 509	1 872	2 075	716.2	721.3	716.3	506.3	527.4	549.1
Bahrain	57	87	96	12.3	8.8	8.5	8.6	7.0	6.7	4 414	10 497	11 549	950.7	1 061.6	1 017.7	664.1	845.9	810.0
Bangladesh	35 180	43 094	49 234	43.7	42.9	43.7	27.6	29.2	31.2	2 113 177	2 320 878	2 613 020	2 625.7	2 312.3	2 321.6	1 655.3	1 572.7	1 654.0
Barbados	33	30	31	15.5	13.2	13.2	12.2	10.6	10.8	1 893	2 043	2 101	891.7	902.3	896.0	697.2	724.1	735.1
Belarus	3 556	2 894	2 162	44.2	36.1	27.4	36.0	30.7	22.9	145 589	126 049	105 603	1 810.2	1 572.2	1 339.2	1 474.8	1 338.0	1 118.0
Belgium	3 736	3 840	3 528	44.1	42.2	37.4	36.3	35.1	31.1	114 448	113 854	108 282	1 350.3	1 252.2	1 149.2	1 113.1	1 040.8	953.7
Belize	21	22	27	14.3	10.6	10.7	8.5	6.8	7.3	1 788	2 174	2 687	1 220.1	1 047.1	1 065.1	723.0	674.2	729.4
Benin	796	1 132	1 361	21.1	21.9	21.9	11.6	12.3	12.5	58 280	82 650	96 122	1 547.2	1 600.0	1 547.5	848.8	898.4	884.1
Bhutan	176	190	204	49.5	40.3	37.8	29.8	27.7	27.7	10 552	12 410	13 533	2 966.5	2 630.3	2 507.5	1 785.4	1 810.4	1 837.0
Bolivia (Plurinational State of)	1 717	1 713	1 867	32.8	26.0	24.9	20.4	17.0	16.9	88 875	97 184	105 489	1 695.7	1 476.3	1 405.9	1 055.7	967.1	956.2
Bosnia and Herzegovina	883	784	670	29.7	25.1	23.3	23.5	21.2	19.8	46 667	40 391	36 453	1 569.0	1 293.6	1 265.3	1 244.1	1 090.0	1 076.5

ANNEX 3 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATH AND DALY PER 100 000 OF THE WORKING-AGE POPULATION (≥ 15 YEARS) AND THE TOTAL POPULATION (ALL AGES), GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

	No. deaths			No. deaths per 100 000 population (≥ 15 years)			No. deaths per 100 000 population (all ages)			No. DALYs			No. DALYs per 100 000 population (≥ 15 years)			No. DALYs per 100 000 population (all ages)		
	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Botswana	199	248	259	19.7	19.2	18.4	12.1	12.5	12.0	14 343	16 584	17 634	1 422.8	1 283.3	1 250.5	872.8	834.6	816.4
Brazil	29 184	28 594	28 355	23.8	19.4	17.6	16.7	14.6	13.8	1 604 011	1 678 162	1 703 521	1 309.8	1 140.6	1 060.0	917.7	857.5	826.3
Brunei Darussalam	21	21	32	9.1	7.3	10.0	6.3	5.4	7.6	3 260	3 226	3 824	1 411.1	1 121.1	1 196.8	978.5	830.1	910.9
Bulgaria	1 146	1 084	961	17.0	16.9	15.7	14.3	14.6	13.4	63 754	62 655	57 788	945.1	975.5	943.0	797.1	843.8	808.0
Burkina Faso	1 355	1 690	1 869	21.9	20.1	18.4	11.7	10.8	10.0	102 415	133 536	149 784	1 657.5	1 591.2	1 470.9	882.3	855.7	803.3
Burundi	878	1 662	2 067	27.6	34.9	36.2	13.8	19.2	19.7	66 990	127 232	158 553	2 103.4	2 673.3	2 777.0	1 050.2	1 466.5	1 511.8
Cabo Verde	45	47	40	18.4	14.1	10.7	10.5	9.5	7.5	3 217	3 547	3 654	1 317.3	1 063.7	976.9	751.3	720.0	688.0
Cambodia	2 631	2 928	3 179	37.1	30.7	29.4	21.6	20.5	20.2	161 796	184 479	198 659	2 278.9	1 933.2	1 836.5	1 331.1	1 289.0	1 260.0
Cameroon	1 960	2 365	2 874	23.0	20.6	21.1	12.6	11.6	12.0	149 207	182 193	213 018	1 751.5	1 590.6	1 563.7	961.8	895.7	890.3
Canada	8 709	9 077	9 266	35.2	31.8	30.3	28.5	26.6	25.5	343 861	346 419	351 220	1 390.7	1 214.8	1 147.8	1 124.2	1 014.5	965.3
Central African Republic	698	680	594	33.8	27.7	23.8	19.2	15.5	13.1	43 286	43 058	42 668	2 096.2	1 754.5	1 708.2	1 189.0	981.5	940.3
Chad	1 704	2 208	2 536	39.9	36.1	33.3	20.4	18.5	17.4	114 071	151 235	176 585	2 670.2	2 469.8	2 316.0	1 365.2	1 265.3	1 212.7
Chile	1 753	2 118	2 168	15.7	15.9	14.9	11.4	12.4	11.9	104 783	129 468	136 739	939.8	973.8	942.2	683.0	758.8	750.9
China	479 454	442 898	460 257	49.4	39.8	39.7	37.2	32.4	32.5	19 905 168	18 973 358	20 011 944	2 050.7	1 704.1	1 725.8	1 542.4	1 386.1	1 415.2
Colombia	5 874	6 193	6 719	22.0	18.8	18.4	14.8	13.7	13.9	290 039	316 957	336 312	1 085.4	963.7	919.1	731.9	700.9	698.1
Comoros	50	64	80	16.5	15.7	16.8	9.2	9.3	10.1	6 626	8 346	9 624	2 180.7	2 052.5	2 015.3	1 221.7	1 210.1	1 209.7
Congo	413	452	434	22.8	18.1	15.0	13.2	10.6	8.7	29 251	34 088	33 838	1 617.2	1 366.6	1 172.8	935.3	797.6	679.3
Costa Rica	474	500	519	17.4	14.4	13.6	12.0	10.9	10.6	27 303	30 710	31 768	1 001.0	886.4	829.7	689.1	670.9	648.4
Côte d'Ivoire	3 091	4 476	5 158	33.3	38.7	37.6	18.8	21.8	21.7	185 261	264 692	302 549	1 997.4	2 286.5	2 204.1	1 125.9	1 289.1	1 270.0
Croatia	1 001	1 277	1 212	27.3	34.9	33.7	22.6	29.5	28.8	45 154	48 915	44 554	1 233.4	1 336.6	1 237.2	1 019.7	1 130.2	1 058.6
Cuba	3 005	3 446	3 349	34.4	37.3	35.4	27.0	30.7	29.5	147 706	178 810	172 179	1 692.9	1 936.4	1 820.7	1 327.5	1 592.8	1 519.0
Cyprus	155	169	170	21.2	18.5	17.5	16.4	15.2	14.5	7 143	8 383	8 117	975.8	917.0	834.4	757.2	753.4	693.6
Czechia	2 022	1 781	1 707	23.5	19.7	19.0	19.7	16.9	16.1	108 098	103 119	103 276	1 257.0	1 141.2	1 147.0	1 050.6	978.7	972.6
Democratic People's Republic of Korea	9 540	14 832	15 953	56.2	78.1	79.5	41.6	60.4	63.0	417 288	553 070	576 494	2 457.3	2 912.2	2 872.6	1 819.9	2 252.9	2 277.9
Democratic Republic of the Congo	8 562	11 098	12 179	33.4	31.9	28.8	18.2	17.2	15.5	610 866	801 958	896 504	2 381.2	2 306.2	2 120.7	1 296.8	1 242.1	1 137.9
Denmark	1 828	1 801	1 849	42.0	39.5	38.8	34.2	32.4	32.4	64 261	62 569	63 585	1 475.7	1 372.8	1 334.9	1 203.1	1 126.4	1 113.3
Djibouti	66	85	114	15.6	15.0	17.6	9.2	10.1	12.3	6 737	7 998	9 778	1 590.6	1 411.6	1 510.6	938.9	951.9	1 052.4
Dominican Republic	1 464	1 626	1 750	26.6	24.2	23.6	17.3	16.8	16.8	84 680	94 187	100 823	1 535.8	1 400.0	1 356.8	999.6	971.5	969.7
Ecuador	1 886	1 753	2 030	22.9	16.9	17.3	14.9	11.7	12.3	112 494	113 496	127 965	1 364.1	1 096.4	1 088.4	887.1	756.1	776.0

ANNEX 3 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATH AND DALY PER 100 000 OF THE WORKING-AGE POPULATION (≥ 15 YEARS) AND THE TOTAL POPULATION (ALL AGES), GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

	No. deaths			No. deaths per 100 000 population (≥ 15 years)			No. deaths per 100 000 population (all ages)			No. DALYs			No. DALYs per 100 000 population (≥ 15 years)			No. DALYs per 100 000 population (all ages)		
	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Egypt	12 536	17 136	19 599	28.8	30.7	31.3	18.2	20.7	20.8	547 274	767 434	869 717	1 259.2	1 374.9	1 387.8	795.1	927.3	920.9
El Salvador	636	444	476	17.0	10.5	10.4	10.8	7.2	7.5	36 192	27 456	29 665	970.2	649.5	646.9	614.7	444.0	466.7
Equatorial Guinea	118	139	171	32.8	24.0	22.5	19.5	14.7	14.1	8 506	10 055	11 731	2 364.2	1 732.7	1 543.3	1 403.2	1 065.6	965.4
Eritrea	556	636	637	44.7	33.1	32.6	24.3	20.1	18.9	33 555	41 093	42 895	2 696.2	2 141.8	2 192.7	1 463.7	1 296.1	1 270.4
Estonia	245	180	154	21.2	15.9	13.9	17.5	13.5	11.7	14 121	10 865	9 790	1 224.6	961.1	886.7	1 009.3	815.6	743.6
Eswatini	91	99	100	15.9	15.5	14.6	9.1	9.3	9.0	6 097	5 950	6 811	1 064.0	934.2	996.5	606.4	558.8	611.4
Ethiopia	14 504	17 343	21 841	40.9	35.9	36.2	21.9	19.8	21.1	1 090 203	1 335 548	1 676 235	3 074.9	2 767.3	2 776.2	1 646.2	1 523.9	1 617.9
Fiji	158	138	131	30.0	22.6	21.4	19.5	16.0	15.0	9 082	8 445	8 120	1 723.7	1 383.4	1 324.8	1 119.8	982.2	930.8
Finland	1 076	1 124	1 089	25.3	25.1	23.7	20.7	20.9	19.8	45 244	44 577	44 022	1 065.3	995.2	957.1	872.1	830.8	800.7
France	14 321	16 232	17 209	29.9	31.7	32.6	24.3	25.8	26.6	577 533	648 275	661 506	1 206.8	1 264.7	1 251.2	978.6	1 031.0	1 022.9
Gabon	129	129	146	17.8	12.7	11.5	10.5	7.9	7.3	8 492	9 629	10 694	1 172.1	947.6	839.9	691.3	592.9	532.6
Gambia	196	217	235	28.1	22.1	19.7	14.9	12.1	10.9	13 523	14 863	16 361	1 939.0	1 511.0	1 370.5	1 026.3	828.9	761.3
Georgia	1 333	1 448	1 397	38.6	43.1	43.1	30.6	35.3	34.8	68 165	64 079	56 683	1 973.6	1 905.4	1 748.2	1 562.6	1 563.2	1 411.6
Germany	22 811	23 728	24 294	33.2	34.0	34.1	28.0	29.4	29.6	881 259	857 368	867 764	1 283.8	1 227.3	1 217.9	1 082.6	1 060.7	1 055.8
Ghana	1 988	2 744	3 028	17.9	18.2	17.2	10.3	11.1	10.6	137 257	176 780	201 021	1 237.2	1 175.0	1 138.8	712.0	713.4	705.8
Greece	2 561	2 462	2 384	27.2	26.6	26.2	23.1	22.6	22.5	108 150	100 552	94 420	1 149.2	1 087.2	1 038.6	975.9	923.5	889.5
Grenada	7	5	5	10.2	6.2	5.9	6.8	4.7	4.5	651	664	660	950.4	822.1	779.7	633.0	625.1	598.6
Guatemala	1 556	1 599	1 804	23.7	18.0	16.9	13.4	10.9	10.9	105 088	108 102	122 161	1 603.0	1 218.6	1 144.9	902.0	738.9	736.7
Guinea	1 666	2 007	2 094	37.7	36.6	32.2	20.2	19.7	17.8	118 620	140 298	148 097	2 687.2	2 557.4	2 279.1	1 439.4	1 376.5	1 261.6
Guinea-Bissau	125	127	132	19.1	14.7	12.9	10.4	8.3	7.4	10 208	11 539	12 779	1 556.7	1 333.0	1 249.0	849.7	757.8	716.9
Guyana	104	110	128	21.6	21.7	23.4	13.9	14.7	16.6	6 206	6 314	7 112	1 291.6	1 242.9	1 297.9	831.1	842.5	922.0
Haiti	1 370	1 314	1 817	27.1	20.7	25.4	16.2	13.2	16.8	62 962	68 735	86 877	1 244.9	1 084.0	1 214.4	743.9	690.9	801.5
Honduras	593	721	964	15.8	13.9	15.5	9.0	8.7	10.4	39 784	49 401	63 060	1 058.3	951.5	1 015.2	605.1	593.9	680.2
Hungary	1 951	1 840	1 897	23.0	21.8	22.7	19.1	18.5	19.5	94 303	87 722	90 360	1 109.4	1 037.9	1 082.0	922.7	883.6	926.5
Iceland	49	63	57	22.8	24.8	21.5	17.5	19.7	17.2	2 965	3 075	3 036	1 376.7	1 212.0	1 144.4	1 057.3	959.9	913.9
India	345 418	370 599	416 910	50.1	43.4	43.7	32.7	30.0	31.5	16 285 249	16 893 968	18 850 632	2 361.3	1 978.2	1 974.8	1 541.3	1 368.7	1 423.2
Indonesia	73 328	90 778	102 523	50.0	52.7	53.9	34.7	37.5	39.2	3 678 072	4 505 634	4 985 614	2 509.0	2 617.8	2 619.5	1 738.9	1 863.1	1 906.1
Iran (Islamic Republic of)	11 557	12 038	11 303	26.7	21.5	18.7	17.6	16.3	14.2	551 469	574 026	563 881	1 272.6	1 024.6	932.9	840.4	778.2	708.7

ANNEX 3 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATH AND DALY PER 100 000 OF THE WORKING-AGE POPULATION (≥ 15 YEARS) AND THE TOTAL POPULATION (ALL AGES), GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

	No. deaths			No. deaths per 100 000 population (≥ 15 years)			No. deaths per 100 000 population (all ages)			No. DALYs			No. DALYs per 100 000 population (≥ 15 years)			No. DALYs per 100 000 population (all ages)		
	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Iraq	2 927	3 644	4 486	21.8	21.1	20.1	12.5	12.3	12.3	142 952	200 919	264 512	1 066.0	1 160.8	1 186.4	608.4	675.5	722.5
Ireland	960	748	808	32.3	20.7	22.0	25.4	16.4	17.2	35 044	33 707	35 134	1 179.5	934.3	956.2	926.3	740.1	748.2
Israel	659	679	716	15.4	12.7	12.3	11.1	9.2	8.8	32 912	39 016	42 289	769.6	730.2	723.6	553.5	531.1	521.5
Italy	18 476	20 058	20 010	38.0	39.4	38.2	32.6	33.8	33.0	618 868	617 513	613 696	1 274.1	1 211.5	1 171.0	1 091.6	1 040.9	1 011.6
Jamaica	390	307	323	21.7	15.0	14.7	14.7	10.9	11.1	20 523	17 788	18 408	1 139.4	867.2	836.8	773.1	632.9	633.4
Japan	33 115	37 853	38 439	30.5	34.0	34.5	26.0	29.4	30.1	1 461 835	1 411 556	1 373 425	1 345.2	1 267.4	1 234.4	1 146.3	1 098.1	1 075.0
Jordan	656	878	1 172	21.2	19.3	19.0	12.8	12.1	12.3	32 364	44 998	58 021	1 046.3	991.1	941.0	631.8	619.7	607.3
Kazakhstan	4 818	4 380	4 011	44.5	35.5	30.9	32.3	27.0	22.5	230 428	218 932	211 893	2 130.6	1 773.8	1 634.8	1 544.1	1 347.1	1 188.3
Kenya	3 575	3 008	3 845	20.4	12.7	13.3	11.2	7.2	7.8	329 257	328 532	406 006	1 881.3	1 382.0	1 400.6	1 030.1	781.6	827.7
Kiribati	3	5	9	5.9	7.6	12.3	3.6	4.9	8.0	649	830	923	1 281.1	1 262.0	1 260.1	768.9	806.4	820.2
Kuwait	225	405	626	15.4	17.6	20.1	11.0	13.5	15.8	17 174	28 599	41 028	1 172.5	1 244.9	1 317.5	839.8	955.9	1 036.9
Kyrgyzstan	1 027	1 022	976	32.1	26.9	23.6	20.9	18.8	16.1	51 052	54 290	55 493	1 594.7	1 428.2	1 341.9	1 037.5	1 001.2	913.6
Lao People's Democratic Republic	1 239	1 409	1 504	41.1	35.5	32.9	23.3	22.5	22.0	64 532	73 471	80 643	2 140.1	1 849.5	1 763.6	1 212.2	1 175.7	1 178.0
Latvia	751	553	411	38.3	30.4	24.6	31.5	26.1	20.8	33 369	25 458	20 663	1 703.9	1 398.5	1 234.6	1 399.6	1 201.5	1 046.6
Lebanon	768	958	1 277	29.0	26.1	26.1	20.0	19.3	19.0	34 959	43 180	58 528	1 320.3	1 175.2	1 194.0	909.7	871.8	871.7
Lesotho	270	284	288	22.1	21.9	20.8	13.3	14.2	13.9	14 086	12 915	13 671	1 155.1	993.9	986.6	692.9	647.2	658.8
Liberia	434	595	627	26.6	26.8	23.5	15.2	15.3	13.7	29 410	38 854	43 262	1 801.7	1 752.8	1 620.7	1 032.5	998.5	943.2
Libya	804	877	899	22.7	19.9	19.4	15.0	14.2	13.8	39 482	43 334	43 869	1 114.0	981.4	948.0	736.9	699.2	675.7
Lithuania	861	764	589	30.7	28.7	23.9	24.6	24.5	20.4	41 581	35 348	29 284	1 485.0	1 327.6	1 187.3	1 187.4	1 131.6	1 013.4
Luxembourg	88	94	96	24.9	22.5	19.8	20.2	18.5	16.6	3 861	3 997	4 323	1 092.3	955.6	891.0	885.3	787.0	746.3
Madagascar	4 240	5 504	5 572	49.0	46.1	38.1	26.9	26.0	22.4	271 668	371 771	391 327	3 141.5	3 112.1	2 677.7	1 723.0	1 757.6	1 571.9
Malawi	1 962	1 666	1 954	32.6	21.4	20.5	17.6	11.5	11.4	140 849	138 567	164 077	2 343.0	1 776.4	1 724.0	1 263.4	953.0	953.6
Malaysia	3 948	4 491	4 982	25.5	22.1	21.6	17.0	15.9	16.2	207 414	242 120	268 837	1 341.8	1 191.5	1 163.8	894.2	858.3	876.1
Maldives	43	37	36	25.9	13.5	9.6	15.4	10.1	7.6	2 420	2 427	2 598	1 454.9	888.3	689.2	866.2	663.6	546.4
Mali	2 097	2 545	2 915	35.9	32.2	31.1	19.2	16.9	16.2	134 726	176 769	202 754	2 303.4	2 236.8	2 164.3	1 230.8	1 174.6	1 128.6
Malta	66	75	95	20.9	21.3	25.4	16.8	18.1	21.8	3 508	3 846	4 039	1 111.9	1 092.1	1 079.6	891.1	928.4	926.2
Mauritania	223	297	369	15.0	14.5	14.9	8.5	8.5	8.9	17 095	23 142	26 794	1 151.2	1 127.3	1 079.9	649.9	662.3	643.5
Mauritius	170	136	170	19.3	14.0	16.6	14.3	10.9	13.5	9 277	8 824	9 772	1 054.3	905.9	954.9	782.8	707.1	774.4
Mexico	13 364	15 570	16 452	20.5	19.4	18.3	13.5	13.6	13.3	766 404	833 132	892 709	1 177.6	1 035.9	995.7	774.9	730.2	723.8

ANNEX 3 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATH AND DALY PER 100 000 OF THE WORKING-AGE POPULATION (≥ 15 YEARS) AND THE TOTAL POPULATION (ALL AGES), GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

	No. deaths			No. deaths per 100 000 population (≥ 15 years)			No. deaths per 100 000 population (all ages)			No. DALYs			No. DALYs per 100 000 population (≥ 15 years)			No. DALYs per 100 000 population (all ages)		
	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Micronesia (Federated States of)	2	6	5	3.1	9.1	6.7	1.9	5.8	4.5	873	786	807	1 362.7	1 187.5	1 082.0	812.8	763.7	732.2
Mongolia	612	665	715	39.1	33.5	33.2	25.5	24.4	23.4	30 406	36 217	39 180	1 944.4	1 824.6	1 816.6	1 268.3	1 331.6	1 281.9
Montenegro	84	80	73	17.4	15.9	14.3	13.7	12.8	11.6	5 447	4 959	4 861	1 130.1	983.6	948.9	887.8	794.4	774.9
Morocco	6 619	5 046	4 933	34.6	21.8	19.4	23.0	15.6	14.0	336 180	302 909	304 496	1 755.4	1 310.1	1 198.0	1 167.5	936.5	866.9
Mozambique	3 882	2 912	2 741	39.5	22.8	18.0	21.9	12.4	9.8	272 514	238 726	242 743	2 772.4	1 869.4	1 592.1	1 538.6	1 014.5	872.2
Myanmar	10 606	13 456	15 140	33.6	38.0	39.3	22.7	26.6	28.5	505 414	636 153	707 994	1 603.0	1 797.2	1 836.7	1 081.8	1 257.2	1 334.7
Namibia	181	180	197	17.4	13.6	13.2	10.1	8.5	8.4	11 141	12 703	14 229	1 070.8	957.9	955.9	620.8	599.5	603.4
Nepal	9 185	9 500	9 726	65.0	55.2	52.7	38.4	35.2	35.7	492 447	466 409	472 163	3 484.2	2 710.0	2 558.2	2 056.9	1 726.6	1 731.9
Netherlands	5 589	5 506	5 621	43.0	40.0	39.7	35.1	33.0	33.1	181 011	178 240	179 292	1 394.0	1 295.4	1 265.6	1 136.6	1 068.4	1 055.8
New Zealand	1 036	1 051	1 016	34.7	30.3	27.2	26.8	24.1	21.8	41 775	43 539	43 601	1 400.7	1 253.2	1 167.0	1 082.5	996.3	935.8
Nicaragua	527	576	633	17.2	14.8	14.5	10.4	9.9	10.0	33 912	39 876	43 902	1 108.6	1 026.8	1 007.9	669.0	684.7	696.4
Niger	1 872	3 106	3 457	31.9	37.8	33.4	16.5	18.9	16.6	137 139	216 112	241 770	2 339.8	2 627.2	2 333.3	1 210.2	1 312.6	1 163.0
Nigeria	18 343	21 279	24 461	26.6	24.0	23.5	15.0	13.4	13.2	1 330 528	1 558 318	1 757 639	1 929.3	1 756.7	1 691.0	1 088.1	983.1	945.2
North Macedonia	290	288	281	18.4	16.9	16.2	14.3	13.9	13.5	16 147	17 124	17 069	1 026.3	1 007.3	985.7	793.5	827.0	820.3
Norway	935	1 053	1 006	26.0	26.5	23.3	20.8	21.6	19.2	38 140	40 849	40 092	1 059.4	1 029.8	928.9	847.7	836.1	763.5
Oman	261	300	418	18.3	13.3	11.9	11.5	9.9	9.3	15 463	19 637	32 168	1 084.0	868.8	919.1	681.8	645.6	718.2
Pakistan	32 481	37 237	41 045	39.3	33.3	31.3	22.8	20.8	20.2	1 497 441	1 715 934	1 890 025	1 812.6	1 535.0	1 443.4	1 052.0	956.4	928.2
Panama	324	346	352	15.7	13.4	12.0	10.7	9.5	8.7	20 525	21 531	22 392	995.8	834.0	766.1	677.3	591.1	554.7
Papua New Guinea	878	966	1 257	24.9	21.4	23.9	15.0	13.2	15.2	48 553	55 406	67 829	1 378.4	1 228.4	1 290.6	830.3	757.9	820.0
Paraguay	938	976	1 078	28.6	23.3	22.7	17.6	15.6	15.9	57 839	60 871	66 917	1 766.0	1 452.7	1 410.9	1 086.5	974.2	987.3
Peru	3 570	3 856	4 250	20.6	19.0	18.9	13.5	13.3	13.7	196 057	229 906	256 021	1 130.2	1 133.0	1 135.6	741.0	792.0	827.8
Philippines	13 577	22 168	26 635	28.3	35.7	37.7	17.4	23.6	25.7	784 393	1 108 527	1 286 094	1 634.5	1 787.2	1 822.4	1 005.7	1 179.7	1 240.6
Poland	7 454	8 637	9 174	24.0	26.6	28.3	19.3	22.5	24.1	395 050	408 363	412 287	1 273.7	1 256.6	1 273.6	1 024.6	1 065.4	1 085.3
Portugal	2 643	2 159	1 910	30.6	24.0	21.5	25.7	20.4	18.5	116 466	102 759	96 018	1 347.0	1 140.5	1 079.7	1 131.1	969.8	929.9
Qatar	40	138	227	9.1	8.5	9.9	6.8	7.4	8.6	4 792	16 354	22 616	1 088.9	1 011.3	985.0	808.8	881.0	852.0
Republic of Korea	11 345	9 642	9 105	30.2	23.2	20.6	23.9	19.5	17.9	658 929	606 062	591 949	1 751.9	1 458.0	1 342.2	1 390.8	1 223.2	1 161.1
Republic of Moldova	851	792	602	26.5	23.2	17.6	20.2	19.4	14.8	45 382	40 485	34 682	1 410.7	1 186.8	1012.9	1 079.8	990.8	853.0
Romania	7 011	5 586	4 754	38.9	32.4	28.4	31.7	27.3	24.0	349 360	269 904	239 628	1 938.5	1 565.4	1 431.2	1 578.1	1 318.4	1 210.5

ANNEX 3 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATH AND DALY PER 100 000 OF THE WORKING-AGE POPULATION (≥ 15 YEARS) AND THE TOTAL POPULATION (ALL AGES), GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

	No. deaths			No. deaths per 100 000 population (≥ 15 years)			No. deaths per 100 000 population (all ages)			No. DALYs			No. DALYs per 100 000 population (≥ 15 years)			No. DALYs per 100 000 population (all ages)		
	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Russian Federation	51 714	40 001	33 976	43.2	32.8	28.3	35.3	27.9	23.4	2 349 918	1 942 360	1 749 394	1 963.3	1 591.3	1 455.9	1 605.1	1 353.8	1 204.2
Rwanda	1 466	1 262	1 450	33.2	21.5	20.8	18.5	12.6	12.4	110 101	113 349	131 244	2 494.8	1 931.3	1 884.7	1 387.8	1 129.0	1 124.7
Saint Lucia	15	11	14	14.1	8.2	9.6	9.6	6.3	7.8	1 072	1 209	1 330	1 010.1	904.4	915.8	683.9	694.5	738.8
Saint Vincent and the Grenadines	2	6	8	2.7	7.5	9.5	1.9	5.5	7.3	501	637	732	678.4	793.3	872.5	464.8	588.4	668.7
Samoa	20	16	13	19.4	13.9	10.9	11.5	8.6	6.7	1 790	1 423	1 340	1 731.9	1 240.5	1 122.8	1 026.1	765.3	688.8
Sao Tome and Principe	5	3	4	6.3	2.9	3.5	3.5	1.7	2.0	876	1 067	1 231	1 106.9	1 045.2	1 065.2	615.8	591.6	605.7
Saudi Arabia	2 614	3 209	3 866	20.5	16.6	16.0	12.7	11.7	11.9	143 477	185 020	221 468	1 124.8	959.8	916.6	694.3	674.7	682.6
Senegal	1 211	1 490	1 503	22.4	20.8	17.7	12.4	11.8	10.0	82 072	104 392	112 013	1 515.0	1 457.5	1 319.4	837.7	823.4	747.1
Serbia	2 464	2 128	1 873	32.7	28.6	25.2	26.0	23.7	21.2	115 143	100 454	91 331	1 526.5	1 351.5	1 227.7	1 213.6	1 117.2	1 031.5
Seychelles	0	0	4	0.0	0.0	5.5	0.0	0.0	4.2	727	886	899	1 257.9	1 257.6	1 224.9	897.6	970.7	939.3
Sierra Leone	1 562	1 631	1 710	61.0	44.6	40.0	34.1	25.4	23.3	80 382	89 275	95 246	3 140.4	2 442.9	2 226.7	1 753.3	1 391.5	1 299.6
Singapore	788	776	803	24.1	17.6	16.2	19.6	15.1	14.2	36 530	37 665	39 081	1 115.4	853.5	788.1	906.7	734.0	691.3
Slovakia	569	520	506	13.1	11.4	11.0	10.5	9.6	9.3	37 008	36 659	36 405	853.7	801.2	789.4	685.4	678.3	669.0
Slovenia	481	509	496	28.7	29.0	28.1	24.2	24.9	23.9	22 398	23 137	22 509	1 337.8	1 316.5	1 273.4	1 126.8	1 132.3	1 085.2
Solomon Islands	56	57	62	23.4	18.2	16.8	13.6	10.8	10.0	3 665	3 613	3 869	1 529.2	1 155.2	1 048.5	888.1	684.5	624.6
Somalia	1 820	2 213	2 667	38.9	35.5	35.4	20.5	18.4	18.8	114 122	148 404	174 268	2 436.1	2 377.6	2 315.4	1 286.3	1 232.2	1 228.5
South Africa	7 344	7 516	7 977	24.7	20.9	20.0	16.3	14.7	14.2	361 163	380 297	411 807	1 214.4	1 055.8	1 035.0	803.2	742.5	732.7
South Sudan	1 641	1 930	2 296	48.0	35.9	36.7	26.5	20.3	21.2	115 748	146 498	177 351	3 383.8	2 727.8	2 836.2	1 867.1	1 540.7	1 637.2
Spain	9 005	9 320	9 186	25.9	23.3	23.1	22.1	19.9	19.7	345 474	364 338	348 157	992.5	911.1	875.9	846.2	776.3	746.6
Sri Lanka	3 933	4 077	4 666	28.6	27.0	29.4	20.9	20.1	22.2	198 443	214 853	236 553	1 442.8	1 421.0	1 492.3	1 056.8	1 060.4	1 125.3
Sudan	8 071	8 536	9 259	52.7	43.3	39.5	29.6	24.7	23.2	448 734	475 962	508 866	2 927.5	2 417.0	2 171.4	1 645.2	1 377.8	1 277.0
Suriname	72	66	74	22.7	17.7	18.1	15.3	12.5	13.1	3 873	3 861	4 210	1 222.1	1 033.6	1 030.6	822.4	729.7	745.3
Sweden	1 853	1 850	1 856	25.6	23.6	22.8	20.9	19.7	18.9	77 370	77 631	78 147	1 067.8	990.2	961.7	871.1	826.7	794.5
Switzerland	1 853	1 881	1 893	31.4	28.4	26.5	25.9	24.1	22.6	79 550	83 653	84 745	1 348.8	1 261.2	1 187.4	1 113.6	1 071.3	1 011.3
Syrian Arab Republic	3 067	4 084	3 546	31.7	30.5	30.0	18.7	19.1	20.3	166 867	223 873	184 005	1 723.8	1 673.8	1 557.7	1 016.8	1 048.0	1 053.5
Tajikistan	841	924	1 101	23.5	19.1	19.9	13.5	12.3	12.7	51 171	57 119	70 297	1 432.2	1 179.7	1 270.4	823.2	758.8	811.4
Thailand	16 215	19 042	19 559	33.9	35.1	34.4	25.8	28.3	28.4	899 204	1 083 594	1 104 180	1 879.0	1 995.4	1 943.9	1 428.4	1 612.6	1 600.9
Timor-Leste	153	141	145	31.4	22.4	19.5	17.3	12.9	11.9	11 009	10 321	10 595	2 258.1	1 642.4	1 421.4	1 244.8	943.8	868.9
Togo	1 062	1 261	1 382	38.0	34.3	31.7	21.6	19.6	18.4	61 552	74 924	84 386	2 202.5	2 039.3	1 934.2	1 249.9	1 166.7	1 123.7

ANNEX 3 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATH AND DALY PER 100 000 OF THE WORKING-AGE POPULATION (≥ 15 YEARS) AND THE TOTAL POPULATION (ALL AGES), GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

	No. deaths			No. deaths per 100 000 population (≥ 15 years)			No. deaths per 100 000 population (all ages)			No. DALYs			No. DALYs per 100 000 population (≥ 15 years)			No. DALYs per 100 000 population (all ages)		
	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Tonga	5	4	5	8.3	6.1	7.7	5.1	3.8	4.9	812	732	734	1 347.5	1 124.7	1 136.2	828.9	704.0	725.7
Trinidad and Tobago	199	203	203	21.1	19.3	18.6	15.7	15.3	14.7	9 192	9 914	10 223	974.9	941.6	934.9	725.4	746.5	742.1
Tunisia	2 101	2 321	2 361	30.7	28.5	27.5	21.6	21.8	20.9	87 766	97 161	100 970	1 283.3	1 191.6	1 175.3	904.0	913.6	893.2
Turkey	22 110	23 255	22 438	50.4	44.0	37.6	35.0	32.2	28.1	1 136 939	1 083 095	1 010 894	2 590.6	2 048.6	1 695.8	1 797.8	1 497.5	1 266.3
Turkmenistan	627	679	767	21.8	18.9	19.6	13.9	13.3	13.5	42 365	50 018	53 227	1 471.9	1 395.0	1 359.0	938.1	983.2	940.0
Uganda	4 229	4 994	5 843	35.5	30.3	28.2	17.9	15.4	14.7	312 947	382 876	453 116	2 628.6	2 319.3	2 184.0	1 323.2	1 180.7	1 142.8
Ukraine	20 080	16 252	12 978	49.6	41.3	34.3	41.1	35.5	29.0	794 020	663 706	532 841	1 961.6	1 687.8	1 409.2	1 625.8	1 449.4	1 191.7
United Arab Emirates	305	687	839	13.2	9.3	10.5	9.7	8.0	9.0	24 716	65 399	76 116	1 066.3	880.8	950.2	788.6	764.9	813.1
United Kingdom	20 963	21 905	22 686	43.9	41.8	41.5	35.6	34.5	34.2	638 095	650 738	663 041	1 337.5	1 242.9	1 213.6	1 082.9	1 025.4	1 000.1
United Republic of Tanzania	9 059	9 758	11 319	49.0	39.9	38.4	27.0	22.0	21.3	646 712	719 517	822 583	3 495.3	2 943.3	2 794.3	1 930.5	1 622.5	1 550.6
United States of America	68 695	64 900	67 198	31.1	26.3	25.7	24.4	21.0	20.8	2 505 083	2 426 189	2 525 864	1 135.7	984.0	965.7	889.2	785.1	782.0
Uruguay	817	790	740	32.6	30.2	27.3	24.6	23.5	21.6	34 148	35 249	34 356	1 363.1	1 348.8	1 269.1	1 028.6	1 049.3	1 003.3
Uzbekistan	3 299	3 197	3 289	21.2	15.8	14.6	13.3	11.2	10.5	214 646	235 370	250 523	1 381.4	1 164.8	1 112.7	866.6	825.4	796.8
Vanuatu	15	19	22	13.9	13.0	12.9	8.1	8.0	7.9	2 019	2 341	2 685	1 866.0	1 604.0	1 578.8	1 091.6	991.0	964.7
Venezuela (Bolivarian Republic of)	6 633	6 771	7 139	41.5	34.0	33.3	27.4	23.8	23.9	380 412	383 911	409 675	2 381.6	1 925.9	1 911.9	1 572.4	1 349.9	1 372.4
Viet Nam	16 665	18 840	21 159	30.5	28.0	29.4	20.9	21.4	22.6	876 944	1 014 568	1 161 117	1 603.8	1 510.1	1 611.1	1 097.4	1 153.3	1 240.0
Yemen	4 445	5 566	6 245	50.0	41.9	38.5	25.5	24.0	23.0	235 044	294 758	328 078	2 643.7	2 220.6	2 024.9	1 350.1	1 273.0	1 207.6
Zambia	1 635	1 772	1 849	29.3	24.7	20.9	15.7	13.0	11.3	119 941	138 824	153 483	2 148.7	1 935.7	1 731.8	1 151.5	1 020.3	938.0
Zimbabwe	1 987	1 783	1 755	28.9	24.0	21.8	16.7	14.0	12.5	108 383	112 813	124 057	1 574.5	1 521.6	1 542.1	912.2	888.5	884.2

DALYs, disability-adjusted life years.

ANNEX 4

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATHS AND DALYS PER 100 000 WORKING-AGE POPULATION (≥ 15 YEARS) AND TOTAL POPULATION (ALL AGES), AS A RESULT OF STROKE ATTRIBUTABLE TO EXPOSURE TO LONG WORKING HOURS, GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

	No. deaths			No. deaths per 100 000 population (≥ 15 years)			No. deaths per 100 000 population (all ages)			No. DALYs			No. DALYs per 100 000 population (≥ 15 years)			No. DALYs per 100 000 population (all ages)		
	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Global	334 724	366 524	398 306	7.9	7.3	7.3	5.5	5.3	5.4	10 352 978	11 471 221	12 603 247	242.9	227.4	229.8	169.6	165.9	169.9
African Region	17 889	20 295	22 968	4.8	4.2	4.0	2.7	2.4	2.3	558 502	631 718	711 785	150.6	129.2	122.5	84.6	73.6	70.5
Region of the Americas	19 559	17 806	18 254	3.3	2.5	2.4	2.4	1.9	1.9	608 837	552 436	569 243	102.3	79.1	75.0	73.5	59.5	57.8
South-East Asia Region	119 874	143 544	158 993	11.5	11.3	11.3	7.6	7.9	8.2	3 632 197	4 372 927	4 865 559	348.6	344.6	345.4	230.9	240.9	250.5
European Region	37 206	29 411	24 195	5.4	4.0	3.2	4.3	3.3	2.6	1 091 086	880 492	730 397	157.2	119.2	96.8	126.0	98.3	79.5
Eastern Mediterranean Region	25 474	28 569	30 783	8.9	7.4	6.9	5.4	4.8	4.6	762 596	861 827	936 298	266.1	222.7	209.2	160.9	145.3	139.2
Western Pacific Region	114 722	126 899	143 113	9.0	8.7	9.3	6.7	7.0	7.6	3 699 760	4 171 822	4 789 965	290.7	285.1	312.3	217.5	229.0	253.2
Afghanistan	1 111	1 403	1 545	10.5	9.3	7.8	5.3	4.8	4.4	36 719	46 775	51 317	345.8	309.3	260.3	176.7	160.3	145.0
Albania	149	170	173	6.8	7.4	7.3	4.8	5.8	6.0	3 849	4 291	4 397	176.6	187.7	186.6	123.0	145.6	152.3
Algeria	1 068	987	1 039	5.2	3.8	3.6	3.4	2.7	2.6	29 321	26 217	27 234	143.9	100.2	94.8	94.5	72.9	67.2
Angola	601	661	787	6.9	5.3	5.2	3.7	2.8	2.7	19 077	19 363	22 237	220.4	156.5	145.6	116.4	82.9	77.1
Antigua and Barbuda	1	1	0	1.8	1.5	0.0	1.3	1.1	0.0	91	82	100	167.9	123.1	136.3	119.7	93.2	105.8
Argentina	1 695	1 192	1 089	6.4	3.9	3.3	4.6	2.9	2.5	52 247	36 629	33 673	198.1	121.1	103.3	141.7	89.6	77.4
Armenia	121	97	74	5.3	4.2	3.2	3.9	3.4	2.5	3 406	2 835	2 256	149.6	122.3	96.4	111.0	98.5	76.8
Australia	463	338	300	3.1	1.9	1.5	2.4	1.5	1.2	13 538	11 115	10 474	90.1	62.0	53.3	71.3	50.2	43.2
Austria	184	101	87	2.7	1.4	1.2	2.3	1.2	1.0	5 494	3 424	3 078	81.9	47.7	41.0	68.1	40.7	35.2
Azerbaijan	267	276	264	4.8	4.0	3.5	3.3	3.1	2.7	8 039	8 390	8 227	143.7	120.4	109.9	99.0	92.9	84.5
Bahamas	7	9	10	3.3	3.5	3.5	2.3	2.5	2.6	294	377	392	139.5	145.3	135.3	98.6	106.2	103.7
Bahrain	8	9	8	1.7	0.9	0.7	1.2	0.7	0.6	322	402	451	69.4	40.7	39.7	48.4	32.4	31.6
Bangladesh	9 962	14 012	14 821	12.4	14.0	13.2	7.8	9.5	9.4	279 362	396 568	442 714	347.1	395.1	393.3	218.8	268.7	280.2
Barbados	13	15	18	6.1	6.6	7.7	4.8	5.3	6.3	338	446	466	159.2	197.0	198.7	124.5	158.1	163.1
Belarus	864	681	469	10.7	8.5	5.9	8.8	7.2	5.0	26 265	21 039	14 607	326.6	262.4	185.2	266.1	223.3	154.6
Belgium	175	128	113	2.1	1.4	1.2	1.7	1.2	1.0	5 067	3 828	3 560	59.8	42.1	37.8	49.3	35.0	31.4
Belize	5	7	9	3.4	3.4	3.6	2.0	2.2	2.4	228	278	313	155.6	133.9	124.1	92.2	86.2	85.0
Benin	190	269	352	5.0	5.2	5.7	2.8	2.9	3.2	5 742	8 339	10 516	152.4	161.4	169.3	83.6	90.6	96.7
Bhutan	40	40	42	11.2	8.5	7.8	6.8	5.8	5.7	1 351	1 401	1 521	379.8	296.9	281.8	228.6	204.4	206.5
Bolivia (Plurinational State of)	561	496	494	10.7	7.5	6.6	6.7	4.9	4.5	19 193	16 652	15 986	366.2	253.0	213.0	228.0	165.7	144.9
Bosnia and Herzegovina	238	234	184	8.0	7.5	6.4	6.3	6.3	5.4	6 856	6 285	5 087	230.5	201.3	176.6	182.8	169.6	150.2

ANNEX 4 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATHS AND DALYS PER 100 000 WORKING-AGE POPULATION (≥ 15 YEARS) AND TOTAL POPULATION (ALL AGES), AS A RESULT OF STROKE ATTRIBUTABLE TO EXPOSURE TO LONG WORKING HOURS, GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

	No. deaths			No. deaths per 100 000 population (≥ 15 years)			No. deaths per 100 000 population (all ages)			No. DALYs			No. DALYs per 100 000 population (≥ 15 years)			No. DALYs per 100 000 population (all ages)		
	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Botswana	46	62	72	4.6	4.8	5.1	2.8	3.1	3.3	1 366	1 689	1 866	135.5	130.7	132.3	83.1	85.0	86.4
Brazil	5 823	4 768	4 164	4.8	3.2	2.6	3.3	2.4	2.0	179 999	142 453	124 987	147.0	96.8	77.8	103.0	72.8	60.6
Brunei Darussalam	5	9	12	2.2	3.1	3.8	1.5	2.3	2.9	303	349	494	131.2	121.3	154.6	90.9	89.8	117.7
Bulgaria	272	174	136	4.0	2.7	2.2	3.4	2.3	1.9	7 679	4 867	3 767	113.8	75.8	61.5	96.0	65.5	52.7
Burkina Faso	238	325	380	3.9	3.9	3.7	2.1	2.1	2.0	7 377	10 245	12 055	119.4	122.1	118.4	63.6	65.7	64.7
Burundi	181	221	248	5.7	4.6	4.3	2.8	2.5	2.4	5 401	6 924	8 011	169.6	145.5	140.3	84.7	79.8	76.4
Cabo Verde	15	16	14	6.1	4.8	3.7	3.5	3.2	2.6	437	433	400	178.9	129.9	106.9	102.1	87.9	75.3
Cambodia	1 024	1 147	1 238	14.4	12.0	11.4	8.4	8.0	7.9	31 563	34 828	37 564	444.6	365.0	347.3	259.7	243.3	238.3
Cameroon	253	391	568	3.0	3.4	4.2	1.6	1.9	2.4	9 101	13 434	18 690	106.8	117.3	137.2	58.7	66.0	78.1
Canada	419	345	325	1.7	1.2	1.1	1.4	1.0	0.9	14 548	13 494	13 558	58.8	47.3	44.3	47.6	39.5	37.3
Central African Republic	219	220	187	10.6	9.0	7.5	6.0	5.0	4.1	6 482	6 727	5 636	313.9	274.1	225.6	178.1	153.3	124.2
Chad	304	384	429	7.1	6.3	5.6	3.6	3.2	2.9	9 829	12 991	14 814	230.1	212.2	194.3	117.6	108.7	101.7
Chile	385	404	379	3.5	3.0	2.6	2.5	2.4	2.1	11 091	11 344	10 957	99.5	85.3	75.5	72.3	66.5	60.2
China	89 567	98 232	113 477	9.2	8.8	9.8	6.9	7.2	8.0	2 932 197	3 251 669	3 820 211	302.1	292.1	329.4	227.2	237.6	270.2
Colombia	1 381	1 330	1 453	5.2	4.0	4.0	3.5	2.9	3.0	40 538	38 935	43 059	151.7	118.4	117.7	102.3	86.1	89.4
Comoros	7	7	9	2.3	1.7	1.9	1.3	1.0	1.1	274	329	407	90.2	80.9	85.2	50.5	47.7	51.2
Congo	79	75	79	4.4	3.0	2.7	2.5	1.8	1.6	2 657	2 456	2 465	146.9	98.5	85.4	85.0	57.5	49.5
Costa Rica	78	83	93	2.9	2.4	2.4	2.0	1.8	1.9	2 224	2 385	2 782	81.5	68.8	72.7	56.1	52.1	56.8
Côte d'Ivoire	857	1 257	1 475	9.2	10.9	10.7	5.2	6.1	6.2	27 479	42 793	50 450	296.3	369.7	367.5	167.0	208.4	211.8
Croatia	145	84	54	4.0	2.3	1.5	3.3	1.9	1.3	4 176	2 335	1 565	114.1	63.8	43.5	94.3	53.9	37.2
Cuba	560	593	570	6.4	6.4	6.0	5.0	5.3	5.0	15 862	16 173	15 758	181.8	175.1	166.6	142.6	144.1	139.0
Cyprus	12	9	8	1.6	1.0	0.8	1.3	0.8	0.7	388	334	263	53.0	36.5	27.0	41.1	30.0	22.5
Czechia	242	130	94	2.8	1.4	1.0	2.4	1.2	0.9	7 508	4 434	3 310	87.3	49.1	36.8	73.0	42.1	31.2
Democratic People's Republic of Korea	2 964	5 214	5 632	17.5	27.5	28.1	12.9	21.2	22.3	93 765	151 651	158 569	552.2	798.5	790.1	408.9	617.8	626.6
Democratic Republic of the Congo	1 050	1 247	1 426	4.1	3.6	3.4	2.2	1.9	1.8	33 903	38 967	43 899	132.2	112.1	103.8	72.0	60.4	55.7
Denmark	82	67	52	1.9	1.5	1.1	1.5	1.2	0.9	2 473	2 107	1 764	56.8	46.2	37.0	46.3	37.9	30.9
Djibouti	29	32	38	6.8	5.6	5.9	4.0	3.8	4.1	1 004	1 006	1 269	237.0	177.6	196.0	139.9	119.7	136.6
Dominican Republic	335	387	437	6.1	5.8	5.9	4.0	4.0	4.2	10 758	12 131	13 961	195.1	180.3	187.9	127.0	125.1	134.3

ANNEX 4 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATHS AND DALYS PER 100 000 WORKING-AGE POPULATION (≥ 15 YEARS) AND TOTAL POPULATION (ALL AGES), AS A RESULT OF STROKE ATTRIBUTABLE TO EXPOSURE TO LONG WORKING HOURS, GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

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	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Ecuador	330	321	387	4.0	3.1	3.3	2.6	2.1	2.3	10 436	9 964	11 685	126.5	96.3	99.4	82.3	66.4	70.9
Egypt	4 035	5 186	5 702	9.3	9.3	9.1	5.9	6.3	6.0	120 143	158 022	175 878	276.4	283.1	280.6	174.5	190.9	186.2
El Salvador	129	94	97	3.5	2.2	2.1	2.2	1.5	1.5	4 074	2 956	3 153	109.2	69.9	68.8	69.2	47.8	49.6
Equatorial Guinea	31	26	29	8.6	4.5	3.8	5.1	2.8	2.4	998	897	949	277.4	154.6	124.8	164.6	95.1	78.1
Eritrea	174	178	172	14.0	9.3	8.8	7.6	5.6	5.1	5 389	5 224	5 021	433.0	272.3	256.7	235.1	164.8	148.7
Estonia	65	19	15	5.6	1.7	1.4	4.6	1.4	1.1	1 989	716	500	172.5	63.3	45.3	142.2	53.7	38.0
Eswatini	31	32	32	5.4	5.0	4.7	3.1	3.0	2.9	885	864	937	154.4	135.7	137.1	88.0	81.1	84.1
Ethiopia	833	1 002	1 245	2.3	2.1	2.1	1.3	1.1	1.2	30 927	34 643	41 545	87.2	71.8	68.8	46.7	39.5	40.1
Fiji	25	15	14	4.7	2.5	2.3	3.1	1.7	1.6	992	607	576	188.3	99.4	94.0	122.3	70.6	66.0
Finland	83	61	55	2.0	1.4	1.2	1.6	1.1	1.0	2 701	2 098	1 918	63.6	46.8	41.7	52.1	39.1	34.9
France	444	320	264	0.9	0.6	0.5	0.8	0.5	0.4	14 008	10 944	9 623	29.3	21.3	18.2	23.7	17.4	14.9
Gabon	53	51	48	7.3	5.0	3.8	4.3	3.1	2.4	1 315	1 241	1 293	181.5	122.1	101.6	107.1	76.4	64.4
Gambia	56	61	67	8.0	6.2	5.6	4.2	3.4	3.1	1 604	1 803	1 996	230.0	183.3	167.2	121.7	100.5	92.9
Georgia	504	497	479	14.6	14.8	14.8	11.6	12.1	11.9	13 092	12 696	11 803	379.0	377.5	364.0	300.1	309.7	293.9
Germany	1 569	1 066	906	2.3	1.5	1.3	1.9	1.3	1.1	45 608	33 421	28 864	66.4	47.8	40.5	56.0	41.3	35.1
Ghana	588	866	972	5.3	5.8	5.5	3.0	3.5	3.4	17 093	24 420	28 872	154.1	162.3	163.6	88.7	98.5	101.4
Greece	409	270	207	4.3	2.9	2.3	3.7	2.5	2.0	9 543	6 524	5 361	101.4	70.5	59.0	86.1	59.9	50.5
Grenada	5	3	1	7.3	3.7	1.2	4.9	2.8	0.9	163	139	110	238.0	172.1	130.0	158.5	130.9	99.8
Guatemala	219	215	254	3.3	2.4	2.4	1.9	1.5	1.5	7 015	6 373	7 303	107.0	71.8	68.4	60.2	43.6	44.0
Guinea	270	359	409	6.1	6.5	6.3	3.3	3.5	3.5	8 430	11 494	12 847	191.0	209.5	197.7	102.3	112.8	109.4
Guinea-Bissau	45	48	50	6.9	5.5	4.9	3.7	3.2	2.8	1 475	1 524	1 578	224.9	176.0	154.2	122.8	100.1	88.5
Guyana	51	51	54	10.6	10.0	9.9	6.8	6.8	7.0	1 604	1 502	1 691	333.8	295.7	308.6	214.8	200.4	219.2
Haiti	592	536	741	11.7	8.5	10.4	7.0	5.4	6.8	18 472	17 481	22 972	365.2	275.7	321.1	218.2	175.7	211.9
Honduras	88	102	136	2.3	2.0	2.2	1.3	1.2	1.5	2 951	3 463	4 501	78.5	66.7	72.5	44.9	41.6	48.6
Hungary	298	162	109	3.5	1.9	1.3	2.9	1.6	1.1	9 484	5 340	3 736	111.6	63.2	44.7	92.8	53.8	38.3
Iceland	9	5	4	4.2	2.0	1.5	3.2	1.6	1.2	244	220	204	113.3	86.7	76.9	87.0	68.7	61.4
India	71 633	79 780	86 048	10.4	9.3	9.0	6.8	6.5	6.5	2 175 306	2 456 339	2 669 620	315.4	287.6	279.7	205.9	199.0	201.6
Indonesia	23 112	30 820	37 984	15.8	17.9	20.0	10.9	12.7	14.5	710 771	949 737	1 153 401	484.9	551.8	606.0	336.0	392.7	441.0

ANNEX 4 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATHS AND DALYS PER 100 000 WORKING-AGE POPULATION (≥ 15 YEARS) AND TOTAL POPULATION (ALL AGES), AS A RESULT OF STROKE ATTRIBUTABLE TO EXPOSURE TO LONG WORKING HOURS, GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

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	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Iran (Islamic Republic of)	2 803	2 732	2 387	6.5	4.9	3.9	4.3	3.7	3.0	81 996	76 809	67 201	189.2	137.1	111.2	124.9	104.1	84.5
Iraq	838	875	951	6.2	5.1	4.3	3.6	2.9	2.6	25 371	28 086	31 117	189.2	162.3	139.6	108.0	94.4	85.0
Ireland	99	59	52	3.3	1.6	1.4	2.6	1.3	1.1	2 269	1 497	1 378	76.4	41.5	37.5	60.0	32.9	29.3
Israel	75	54	59	1.8	1.0	1.0	1.3	0.7	0.7	2 091	1 715	1 814	48.9	32.1	31.0	35.2	23.3	22.4
Italy	879	657	606	1.8	1.3	1.2	1.6	1.1	1.0	22 978	17 096	16 043	47.3	33.5	30.6	40.5	28.8	26.4
Jamaica	146	124	131	8.1	6.0	6.0	5.5	4.4	4.5	3 925	3 273	3 559	217.9	159.6	161.8	147.9	116.5	122.5
Japan	9 033	6 990	5 503	8.3	6.3	4.9	7.1	5.4	4.3	253 601	203 240	163 945	233.4	182.5	147.3	198.9	158.1	128.3
Jordan	188	218	278	6.1	4.8	4.5	3.7	3.0	2.9	5 542	6 435	8 190	179.2	141.7	132.8	108.2	88.6	85.7
Kazakhstan	969	916	739	9.0	7.4	5.7	6.5	5.6	4.1	31 145	29 686	23 401	288.0	240.5	180.5	208.7	182.7	131.2
Kenya	230	278	373	1.3	1.2	1.3	0.7	0.7	0.8	7 851	9 048	12 048	44.9	38.1	41.6	24.6	21.5	24.6
Kiribati	3	4	6	5.9	6.1	8.2	3.6	3.9	5.3	214	242	277	422.4	367.9	378.2	253.5	235.1	246.2
Kuwait	26	86	107	1.8	3.7	3.4	1.3	2.9	2.7	939	2 682	3 411	64.1	116.7	109.5	45.9	89.6	86.2
Kyrgyzstan	306	290	281	9.6	7.6	6.8	6.2	5.3	4.6	9 246	9 010	8 809	288.8	237.0	213.0	187.9	166.2	145.0
Lao People's Democratic Republic	496	577	598	16.4	14.5	13.1	9.3	9.2	8.7	15 199	17 654	18 500	504.0	444.4	404.6	285.5	282.5	270.2
Latvia	269	166	116	13.7	9.1	6.9	11.3	7.8	5.9	7 639	4 720	3 336	390.1	259.3	199.3	320.4	222.8	169.0
Lebanon	93	92	116	3.5	2.5	2.4	2.4	1.9	1.7	2 832	2 949	3 920	107.0	80.3	80.0	73.7	59.5	58.4
Lesotho	104	105	98	8.5	8.1	7.1	5.1	5.3	4.7	2 661	2 719	2 595	218.2	209.3	187.3	130.9	136.3	125.1
Liberia	127	175	169	7.8	7.9	6.3	4.5	4.5	3.7	3 339	4 732	4 720	204.5	213.5	176.8	117.2	121.6	102.9
Libya	183	189	202	5.2	4.3	4.4	3.4	3.0	3.1	5 700	5 936	6 564	160.8	134.4	141.9	106.4	95.8	101.1
Lithuania	177	176	145	6.3	6.6	5.9	5.1	5.6	5.0	5 357	5 170	4 267	191.3	194.2	173.0	153.0	165.5	147.7
Luxembourg	5	5	2	1.4	1.2	0.4	1.1	1.0	0.3	216	159	126	61.1	38.0	26.0	49.5	31.3	21.8
Madagascar	1 108	1 192	1 173	12.8	10.0	8.0	7.0	5.6	4.7	33 444	36 209	35 074	386.7	303.1	240.0	212.1	171.2	140.9
Malawi	269	192	186	4.5	2.5	2.0	2.4	1.3	1.1	7 996	5 449	5 232	133.0	69.9	55.0	71.7	37.5	30.4
Malaysia	905	1 050	1 132	5.9	5.2	4.9	3.9	3.7	3.7	29 828	35 142	38 768	193.0	172.9	167.8	128.6	124.6	126.3
Maldives	12	8	9	7.2	2.9	2.4	4.3	2.2	1.9	368	287	275	221.2	105.0	73.0	131.7	78.5	57.8
Mali	296	287	346	5.1	3.6	3.7	2.7	1.9	1.9	9 247	9 546	11 417	158.1	120.8	121.9	84.5	63.4	63.5
Malta	4	3	3	1.3	0.9	0.8	1.0	0.7	0.7	175	154	148	55.5	43.7	39.6	44.5	37.2	33.9
Mauritania	75	92	112	5.1	4.5	4.5	2.9	2.6	2.7	2 101	2 775	3 318	141.5	135.2	133.7	79.9	79.4	79.7
Mauritius	52	30	38	5.9	3.1	3.7	4.4	2.4	3.0	1 676	1 062	1 342	190.5	109.0	131.1	141.4	85.1	106.4

ANNEX 4 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATHS AND DALYS PER 100 000 WORKING-AGE POPULATION (≥ 15 YEARS) AND TOTAL POPULATION (ALL AGES), AS A RESULT OF STROKE ATTRIBUTABLE TO EXPOSURE TO LONG WORKING HOURS, GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

	No. deaths			No. deaths per 100 000 population (≥ 15 years)			No. deaths per 100 000 population (all ages)			No. DALYs			No. DALYs per 100 000 population (≥ 15 years)			No. DALYs per 100 000 population (all ages)		
	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Mexico	1901	2 294	2 585	2.9	2.9	2.9	1.9	2.0	2.1	56 250	67 835	77 557	86.4	84.3	86.5	56.9	59.5	62.9
Micronesia (Federated States of)	1	2	3	1.6	3.0	4.0	0.9	1.9	2.7	185	174	179	288.8	262.9	240.0	172.2	169.1	162.4
Mongolia	238	332	362	15.2	16.7	16.8	9.9	12.2	11.8	8 112	11 993	12 821	518.7	604.2	594.5	338.4	440.9	419.5
Montenegro	38	31	31	7.9	6.1	6.1	6.2	5.0	4.9	1 133	914	875	235.1	181.3	170.8	184.7	146.4	139.5
Morocco	1 509	1 075	1 041	7.9	4.6	4.1	5.2	3.3	3.0	43 402	29 369	29 050	226.6	127.0	114.3	150.7	90.8	82.7
Mozambique	705	517	477	7.2	4.0	3.1	4.0	2.2	1.7	21 887	15 468	14 070	222.7	121.1	92.3	123.6	65.7	50.6
Myanmar	4 783	5 882	6 460	15.2	16.6	16.8	10.2	11.6	12.2	136 584	172 007	189 467	433.2	485.9	491.5	292.3	339.9	357.2
Namibia	55	53	54	5.3	4.0	3.6	3.1	2.5	2.3	1 653	1 500	1 550	158.9	113.1	104.1	92.1	70.8	65.7
Nepal	1 991	2 194	2 280	14.1	12.7	12.4	8.3	8.1	8.4	59 622	60 319	61 672	421.8	350.5	334.1	249.0	223.3	226.2
Netherlands	142	95	95	1.1	0.7	0.7	0.9	0.6	0.6	4 514	3 407	3 327	34.8	24.8	23.5	28.3	20.4	19.6
New Zealand	113	89	75	3.8	2.6	2.0	2.9	2.0	1.6	3 381	2 845	2 639	113.4	81.9	70.6	87.6	65.1	56.6
Nicaragua	115	104	114	3.8	2.7	2.6	2.3	1.8	1.8	3 736	3 320	3 722	122.1	85.5	85.4	73.7	57.0	59.0
Niger	311	483	568	5.3	5.9	5.5	2.7	2.9	2.7	9 867	15 628	18 068	168.3	190.0	174.4	87.1	94.9	86.9
Nigeria	3 161	3 695	4 621	4.6	4.2	4.4	2.6	2.3	2.5	100 001	117 439	144 969	145.0	132.4	139.5	81.8	74.1	78.0
North Macedonia	129	121	108	8.2	7.1	6.2	6.3	5.8	5.2	3 612	3 394	3 019	229.6	199.7	174.3	177.5	163.9	145.1
Norway	54	33	32	1.5	0.8	0.7	1.2	0.7	0.6	1 571	1 175	1 058	43.6	29.6	24.5	34.9	24.0	20.1
Oman	54	60	72	3.8	2.7	2.1	2.4	2.0	1.6	1 882	2 182	2 768	131.9	96.5	79.1	83.0	71.7	61.8
Pakistan	9 756	10 989	12 053	11.8	9.8	9.2	6.9	6.1	5.9	280 971	317 607	348 971	340.1	284.1	266.5	197.4	177.0	171.4
Panama	92	89	102	4.5	3.4	3.5	3.0	2.4	2.5	2 510	2 522	2 963	121.8	97.7	101.4	82.8	69.2	73.4
Papua New Guinea	331	369	469	9.4	8.2	8.9	5.7	5.0	5.7	12 063	13 212	16 631	342.5	292.9	316.4	206.3	180.7	201.1
Paraguay	288	275	282	8.8	6.6	5.9	5.4	4.4	4.2	9 278	8 547	8 678	283.3	204.0	183.0	174.3	136.8	128.0
Peru	915	981	1 036	5.3	4.8	4.6	3.5	3.4	3.3	29 009	31 443	33 191	167.2	155.0	147.2	109.6	108.3	107.3
Philippines	2 971	8 522	10 484	6.2	13.7	14.9	3.8	9.1	10.1	103 309	289 356	351 579	215.3	466.5	498.2	132.5	307.9	339.2
Poland	1 247	906	735	4.0	2.8	2.3	3.2	2.4	1.9	40 445	30 648	25 237	130.4	94.3	78.0	104.9	80.0	66.4
Portugal	897	479	352	10.4	5.3	4.0	8.7	4.5	3.4	20 847	11 554	8 862	241.1	128.2	99.7	202.5	109.0	85.8
Qatar	5	10	18	1.1	0.6	0.8	0.8	0.5	0.7	262	618	909	59.5	38.2	39.6	44.2	33.3	34.2
Republic of Korea	3 340	2 041	1 733	8.9	4.9	3.9	7.0	4.1	3.4	105 200	67 426	59 047	279.7	162.2	133.9	222.0	136.1	115.8
Republic of Moldova	269	231	186	8.4	6.8	5.4	6.4	5.7	4.6	8 383	7 213	5 577	260.6	211.4	162.9	199.5	176.5	137.2
Romania	2 351	1 630	1 133	13.0	9.5	6.8	10.6	8.0	5.7	64 720	43 242	30 231	359.1	250.8	180.6	292.4	211.2	152.7

ANNEX 4 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATHS AND DALYS PER 100 000 WORKING-AGE POPULATION (≥ 15 YEARS) AND TOTAL POPULATION (ALL AGES), AS A RESULT OF STROKE ATTRIBUTABLE TO EXPOSURE TO LONG WORKING HOURS, GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

	No. deaths			No. deaths per 100 000 population (≥ 15 years)			No. deaths per 100 000 population (all ages)			No. DALYs			No. DALYs per 100 000 population (≥ 15 years)			No. DALYs per 100 000 population (all ages)		
	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Russian Federation	12 703	8 777	6 623	10.6	7.2	5.5	8.7	6.1	4.6	378 057	271 657	204 659	315.9	222.6	170.3	258.2	189.3	140.9
Rwanda	145	75	88	3.3	1.3	1.3	1.8	0.7	0.8	5 861	2 989	3 336	132.8	50.9	47.9	73.9	29.8	28.6
Saint Lucia	7	6	7	6.6	4.5	4.8	4.5	3.4	3.9	262	233	261	246.9	174.3	179.7	167.2	133.8	145.0
Saint Vincent and the Grenadines	2	4	6	2.7	5.0	7.2	1.9	3.7	5.5	112	148	204	151.7	184.3	243.2	103.9	136.7	186.4
Samoa	11	6	5	10.6	5.2	4.2	6.3	3.2	2.6	372	281	257	359.9	245.0	215.3	213.2	151.1	132.1
Sao Tome and Principe	1	0	0	1.3	0.0	0.0	0.7	0.0	0.0	142	137	146	179.4	134.2	126.3	99.8	76.0	71.8
Saudi Arabia	740	913	1 088	5.8	4.7	4.5	3.6	3.3	3.4	21 088	26 905	33 574	165.3	139.6	139.0	102.1	98.1	103.5
Senegal	223	272	256	4.1	3.8	3.0	2.3	2.1	1.7	6 663	8 223	7 880	123.0	114.8	92.8	68.0	64.9	52.6
Serbia	889	601	410	11.8	8.1	5.5	9.4	6.7	4.6	23 839	15 067	10 743	316.0	202.7	144.4	251.3	167.6	121.3
Seychelles	0	0	2	0.0	0.0	2.7	0.0	0.0	2.1	98	130	139	169.6	184.5	189.4	121.0	142.4	145.2
Sierra Leone	479	505	506	18.7	13.8	11.8	10.4	7.9	6.9	16 396	17 188	16 949	640.6	470.3	396.2	357.6	267.9	231.3
Singapore	151	138	135	4.6	3.1	2.7	3.7	2.7	2.4	4 674	4 738	4 582	142.7	107.4	92.4	116.0	92.3	81.0
Slovakia	45	39	30	1.0	0.9	0.7	0.8	0.7	0.6	1 482	1 365	1 014	34.2	29.8	22.0	27.4	25.3	18.6
Slovenia	88	59	50	5.3	3.4	2.8	4.4	2.9	2.4	2 311	1 614	1 350	138.0	91.8	76.4	116.3	79.0	65.1
Solomon Islands	28	30	31	11.7	9.6	8.4	6.8	5.7	5.0	1 064	1 003	1 022	443.9	320.7	277.0	257.8	190.0	165.0
Somalia	421	437	533	9.0	7.0	7.1	4.7	3.6	3.8	14 339	14 501	17 581	306.1	232.3	233.6	161.6	120.4	123.9
South Africa	1 128	1 172	1 191	3.8	3.3	3.0	2.5	2.3	2.1	32 423	33 072	33 189	109.0	91.8	83.4	72.1	64.6	59.0
South Sudan	249	267	285	7.3	5.0	4.6	4.0	2.8	2.6	7 997	8 224	8 640	233.8	153.1	138.2	129.0	86.5	79.8
Spain	612	438	376	1.8	1.1	0.9	1.5	0.9	0.8	16 406	12 551	11 312	47.1	31.4	28.5	40.2	26.7	24.3
Sri Lanka	1 033	1 045	1 191	7.5	6.9	7.5	5.5	5.2	5.7	30 313	31 723	35 991	220.4	209.8	227.1	161.4	156.6	171.2
Sudan	1 473	1 630	1 818	9.6	8.3	7.8	5.4	4.7	4.6	51 334	56 425	62 069	334.9	286.5	264.9	188.2	163.3	155.8
Suriname	39	35	41	12.3	9.4	10.0	8.3	6.6	7.3	1 231	1 173	1 213	388.4	314.0	296.9	261.4	221.7	214.7
Sweden	161	113	102	2.2	1.4	1.3	1.8	1.2	1.0	4 266	3 222	3 016	58.9	41.1	37.1	48.0	34.3	30.7
Switzerland	75	59	52	1.3	0.9	0.7	1.0	0.8	0.6	2 181	1 795	1 700	37.0	27.1	23.8	30.5	23.0	20.3
Syrian Arab Republic	459	530	517	4.7	4.0	4.4	2.8	2.5	3.0	14 928	18 435	17 819	154.2	137.8	150.8	91.0	86.3	102.0
Tajikistan	176	227	262	4.9	4.7	4.7	2.8	3.0	3.0	5 026	6 318	7 500	140.7	130.5	135.5	80.9	83.9	86.6
Thailand	4 299	4 500	4 473	9.0	8.3	7.9	6.8	6.7	6.5	143 124	151 266	150 670	299.1	278.6	265.3	227.4	225.1	218.5
Timor-Leste	45	49	53	9.2	7.8	7.1	5.1	4.5	4.3	1 629	1 630	1 661	334.1	259.4	222.8	184.2	149.1	136.2
Togo	289	331	353	10.3	9.0	8.1	5.9	5.2	4.7	8 513	10 107	10 893	304.6	275.1	249.7	172.9	157.4	145.0

ANNEX 4 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATHS AND DALYS PER 100 000 WORKING-AGE POPULATION (≥ 15 YEARS) AND TOTAL POPULATION (ALL AGES), AS A RESULT OF STROKE ATTRIBUTABLE TO EXPOSURE TO LONG WORKING HOURS, GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

	No. deaths			No. deaths per 100 000 population (≥ 15 years)			No. deaths per 100 000 population (all ages)			No. DALYs			No. DALYs per 100 000 population (≥ 15 years)			No. DALYs per 100 000 population (all ages)		
	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Tonga	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	115	102	98	190.8	156.7	151.7	117.4	98.1	96.9
Trinidad and Tobago	75	69	69	8.0	6.6	6.3	5.9	5.2	5.0	2 299	2 002	2 090	243.8	190.1	191.1	181.4	150.7	151.7
Tunisia	598	651	630	8.7	8.0	7.3	6.2	6.1	5.6	15 709	17 011	16 893	229.7	208.6	196.6	161.8	159.9	149.4
Turkey	1 729	3 293	3 280	3.9	6.2	5.5	2.7	4.6	4.1	59 518	102 097	99 629	135.6	193.1	167.1	94.1	141.2	124.8
Turkmenistan	140	186	228	4.9	5.2	5.8	3.1	3.7	4.0	4 495	6 164	7 466	156.2	171.9	190.6	99.5	121.2	131.9
Uganda	330	400	493	2.8	2.4	2.4	1.4	1.2	1.2	11 162	13 662	16 897	93.8	82.8	81.4	47.2	42.1	42.6
Ukraine	4 751	3 700	2 962	11.7	9.4	7.8	9.7	8.1	6.6	134 144	103 073	83 755	331.4	262.1	221.5	274.7	225.1	187.3
United Arab Emirates	81	163	223	3.5	2.2	2.8	2.6	1.9	2.4	3 243	6 937	9 436	139.9	93.4	117.8	103.5	81.1	100.8
United Kingdom	1 119	794	662	2.3	1.5	1.2	1.9	1.3	1.0	34 102	25 909	22 834	71.5	49.5	41.8	57.9	40.8	34.4
United Republic of Tanzania	616	721	891	3.3	2.9	3.0	1.8	1.6	1.7	19 705	21 577	27 006	106.5	88.3	91.7	58.8	48.7	50.9
United States of America	2 330	1 928	2 196	1.1	0.8	0.8	0.8	0.6	0.7	78 019	70 097	78 547	35.4	28.4	30.0	27.7	22.7	24.3
Uruguay	208	147	120	8.3	5.6	4.4	6.3	4.4	3.5	6 098	4 207	3 512	243.4	161.0	129.7	183.7	125.2	102.6
Uzbekistan	676	722	736	4.4	3.6	3.3	2.7	2.5	2.3	21 052	22 776	24 018	135.5	112.7	106.7	85.0	79.9	76.4
Vanuatu	5	7	7	4.6	4.8	4.1	2.7	3.0	2.5	298	328	363	275.4	224.7	213.4	161.1	138.9	130.4
Venezuela (Bolivarian Republic of)	764	798	854	4.8	4.0	4.0	3.2	2.8	2.9	23 983	24 382	26 336	150.1	122.3	122.9	99.1	85.7	88.2
Viet Nam	6 012	7 001	7 529	11.0	10.4	10.4	7.5	8.0	8.0	183 551	225 520	249 939	335.7	335.7	346.8	229.7	256.4	266.9
Yemen	1 064	1 289	1 456	12.0	9.7	9.0	6.1	5.6	5.4	34 869	42 735	47 911	392.2	321.9	295.7	200.3	184.6	176.3
Zambia	228	234	226	4.1	3.3	2.6	2.2	1.7	1.4	7 277	7 263	7 132	130.4	101.3	80.5	69.9	53.4	43.6
Zimbabwe	519	474	373	7.5	6.4	4.6	4.4	3.7	2.7	13 980	14 552	11 458	203.1	196.3	142.4	117.7	114.6	81.7

DALYs, disability-adjusted life years.

ANNEX 5

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATHS AND DALYS PER 100 000 WORKING-AGE POPULATION (≥ 15 YEARS) AND TOTAL POPULATION (ALL AGES), AS A RESULT OF ISCHAEMIC HEART DISEASE ATTRIBUTABLE TO EXPOSURE TO LONG WORKING HOURS, GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

	No. deaths			No. deaths per 100 000 population (≥ 15 years)			No. deaths per 100 000 population (all ages)			No. DALYs			No. DALYs per 100 000 population (≥ 15 years)			No. DALYs per 100 000 population (all ages)		
	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Global	244 844	304 200	346 618	5.7	6.0	6.3	4.0	4.4	4.7	7 548 225	9 368 428	10 655 256	177.1	185.7	194.3	123.7	135.5	143.6
African Region	12 629	14 622	16 920	3.4	3.0	2.9	1.9	1.7	1.7	374 457	430 234	492 413	101.0	88.0	84.8	56.7	50.1	48.8
Region of the Americas	23 368	23 281	25 045	3.9	3.3	3.3	2.8	2.5	2.5	698 767	701 180	748 150	117.4	100.4	98.6	84.3	75.5	76.0
South-East Asia Region	93 091	132 710	159 824	8.9	10.5	11.3	5.9	7.3	8.2	2 980 133	4 243 604	5 088 530	286.0	334.4	361.2	189.5	233.7	262.0
European Region	45 401	38 596	33 419	6.5	5.2	4.4	5.2	4.3	3.6	1 323 771	1 092 287	930 068	190.8	147.9	123.3	152.8	122.0	101.2
Eastern Mediterranean Region	34 254	40 981	46 098	12.0	10.6	10.3	7.2	6.9	6.9	1 028 046	1 231 135	1 389 215	358.7	318.1	310.4	216.9	207.5	206.5
Western Pacific Region	36 101	54 010	65 312	2.8	3.7	4.3	2.1	3.0	3.5	1 143 050	1 669 987	2 006 880	89.8	114.1	130.9	67.2	91.7	106.1
Afghanistan	1 425	1 803	2 047	13.4	11.9	10.4	6.9	6.2	5.8	46 677	59 313	66 809	439.5	392.2	338.8	224.6	203.2	188.8
Albania	113	143	147	5.2	6.3	6.2	3.6	4.9	5.1	3 054	3 858	4 001	140.1	168.8	169.8	97.6	130.9	138.6
Algeria	1 566	1 400	1 544	7.7	5.4	5.4	5.0	3.9	3.8	41 981	35 873	39 132	206.0	137.1	136.2	135.2	99.7	96.5
Angola	333	399	515	3.8	3.2	3.4	2.0	1.7	1.8	10 426	11 400	14 056	120.4	92.2	92.0	63.6	48.8	48.7
Antigua and Barbuda	1	1	1	1.8	1.5	1.4	1.3	1.1	1.1	94	95	103	173.4	142.6	140.4	123.7	107.9	109.0
Argentina	1 830	1 526	1 300	6.9	5.0	4.0	5.0	3.7	3.0	51 638	43 075	37 084	195.8	142.4	113.8	140.1	105.3	85.2
Armenia	171	166	155	7.5	7.2	6.6	5.6	5.8	5.3	4 804	4 511	4 174	211.0	194.7	178.3	156.5	156.8	142.2
Australia	806	545	488	5.4	3.0	2.5	4.2	2.5	2.0	23 026	16 521	15 329	153.2	92.1	78.0	121.2	74.6	63.2
Austria	339	225	206	5.1	3.1	2.7	4.2	2.7	2.4	9 654	6 343	5 719	143.8	88.4	76.2	119.6	75.4	65.4
Azerbaijan	451	423	450	8.1	6.1	6.0	5.6	4.7	4.6	13 348	12 410	13 217	238.7	178.1	176.6	164.3	137.4	135.8
Bahamas	7	10	10	3.3	3.9	3.5	2.3	2.8	2.6	320	378	401	151.9	145.7	138.4	107.4	106.5	106.1
Bahrain	29	28	31	6.2	2.8	2.7	4.4	2.3	2.2	971	1 056	1 167	209.1	106.8	102.8	146.1	85.1	81.8
Bangladesh	2 643	6 655	8 361	3.3	6.6	7.4	2.1	4.5	5.3	84 761	206 271	261 976	105.3	205.5	232.8	66.4	139.8	165.8
Barbados	12	10	8	5.7	4.4	3.4	4.4	3.5	2.8	403	332	308	189.8	146.6	131.3	148.4	117.7	107.8
Belarus	1 188	1 194	891	14.8	14.9	11.3	12.0	12.7	9.4	34 057	33 947	24 390	423.4	423.4	309.3	345.0	360.3	258.2
Belgium	264	183	155	3.1	2.0	1.6	2.6	1.7	1.4	7 267	5 144	4 311	85.7	56.6	45.8	70.7	47.0	38.0
Belize	10	9	9	6.8	4.3	3.6	4.0	2.8	2.4	293	291	330	199.9	140.2	130.8	118.5	90.2	89.6
Benin	124	162	209	3.3	3.1	3.4	1.8	1.8	1.9	3 408	4 506	5 624	90.5	87.2	90.5	49.6	49.0	51.7
Bhutan	40	50	58	11.2	10.6	10.7	6.8	7.3	7.9	1 426	1 813	2 125	400.9	384.3	393.7	241.3	264.5	288.4
Bolivia (Plurinational State of)	491	484	518	9.4	7.4	6.9	5.8	4.8	4.7	14 808	14 317	14 775	282.5	217.5	196.9	175.9	142.5	133.9
Bosnia and Herzegovina	230	183	155	7.7	5.9	5.4	6.1	4.9	4.6	6 568	4 989	4 276	220.8	159.8	148.4	175.1	134.6	126.3

ANNEX 5 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATHS AND DALYS PER 100 000 WORKING-AGE POPULATION (≥ 15 YEARS) AND TOTAL POPULATION (ALL AGES), AS A RESULT OF ISCHAEMIC HEART DISEASE ATTRIBUTABLE TO EXPOSURE TO LONG WORKING HOURS, GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

	No. deaths			No. deaths per 100 000 population (≥ 15 years)			No. deaths per 100 000 population (all ages)			No. DALYs			No. DALYs per 100 000 population (≥ 15 years)			No. DALYs per 100 000 population (all ages)		
	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Botswana	29	43	48	2.9	3.3	3.4	1.8	2.2	2.2	927	1 188	1 337	92.0	91.9	94.8	56.4	59.8	61.9
Brazil	4 350	4 113	3 862	3.6	2.8	2.4	2.5	2.1	1.9	137 442	129 214	121 778	112.2	87.8	75.8	78.6	66.0	59.1
Brunei Darussalam	7	7	13	3.0	2.4	4.1	2.1	1.8	3.1	270	355	491	116.9	123.4	153.7	81.0	91.3	117.0
Bulgaria	250	171	129	3.7	2.7	2.1	3.1	2.3	1.8	6 970	4 860	3 593	103.3	75.7	58.6	87.1	65.5	50.2
Burkina Faso	205	280	333	3.3	3.3	3.3	1.8	1.8	1.8	6 030	8 247	9 818	97.6	98.3	96.4	51.9	52.8	52.7
Burundi	85	118	143	2.7	2.5	2.5	1.3	1.4	1.4	2 477	3 702	4 452	77.8	77.8	78.0	38.8	42.7	42.4
Cabo Verde	18	19	14	7.4	5.7	3.7	4.2	3.9	2.6	422	412	366	172.8	123.6	97.9	98.6	83.6	68.9
Cambodia	404	452	510	5.7	4.7	4.7	3.3	3.2	3.2	12 958	14 516	16 443	182.5	152.1	152.0	106.6	101.4	104.3
Cameroon	163	255	357	1.9	2.2	2.6	1.1	1.3	1.5	5 591	8 264	11 085	65.6	72.1	81.4	36.0	40.6	46.3
Canada	1 089	880	823	4.4	3.1	2.7	3.6	2.6	2.3	32 202	27 261	25 299	130.2	95.6	82.7	105.3	79.8	69.5
Central African Republic	107	112	98	5.2	4.6	3.9	2.9	2.6	2.2	3 227	3 540	3 025	156.3	144.2	121.1	88.6	80.7	66.7
Chad	230	276	302	5.4	4.5	4.0	2.8	2.3	2.1	6 950	8 635	9 547	162.7	141.0	125.2	83.2	72.2	65.6
Chile	280	290	299	2.5	2.2	2.1	1.8	1.7	1.6	7 601	8 245	8 648	68.2	62.0	59.6	49.5	48.3	47.5
China	21 660	37 137	46 854	2.2	3.3	4.0	1.7	2.7	3.3	696 482	1 143 323	1 424 658	71.8	102.7	122.9	54.0	83.5	100.8
Colombia	1 562	1 920	2 176	5.8	5.8	5.9	3.9	4.2	4.5	44 811	55 104	62 080	167.7	167.5	169.7	113.1	121.9	128.9
Comoros	6	7	8	2.0	1.7	1.7	1.1	1.0	1.0	205	281	354	67.5	69.1	74.1	37.8	40.7	44.5
Congo	51	52	54	2.8	2.1	1.9	1.6	1.2	1.1	1 829	1 696	1 725	101.1	68.0	59.8	58.5	39.7	34.6
Costa Rica	126	142	158	4.6	4.1	4.1	3.2	3.1	3.2	3 646	4 359	4 803	133.7	125.8	125.4	92.0	95.2	98.0
Côte d'Ivoire	704	931	1 061	7.6	8.0	7.7	4.3	4.5	4.5	20 450	28 689	32 798	220.5	247.8	238.9	124.3	139.7	137.7
Croatia	123	83	56	3.4	2.3	1.6	2.8	1.9	1.3	3 529	2 320	1 602	96.4	63.4	44.5	79.7	53.6	38.1
Cuba	718	697	672	8.2	7.5	7.1	6.5	6.2	5.9	19 763	19 176	18 637	226.5	207.7	197.1	177.6	170.8	164.4
Cyprus	23	22	17	3.1	2.4	1.7	2.4	2.0	1.5	707	655	567	96.6	71.6	58.3	75.0	58.9	48.5
Czechia	353	250	193	4.1	2.8	2.1	3.4	2.4	1.8	10 580	7 414	5 637	123.0	82.0	62.6	102.8	70.4	53.1
Democratic People's Republic of Korea	989	1 753	1 881	5.8	9.2	9.4	4.3	7.1	7.4	30 784	50 575	52 267	181.3	266.3	260.4	134.3	206.0	206.5
Democratic Republic of the Congo	538	642	772	2.1	1.8	1.8	1.1	1.0	1.0	17 720	20 693	24 305	69.1	59.5	57.5	37.6	32.1	30.8
Denmark	118	68	56	2.7	1.5	1.2	2.2	1.2	1.0	3 209	1 970	1 648	73.7	43.2	34.6	60.1	35.5	28.9
Djibouti	18	24	31	4.2	4.2	4.8	2.5	2.9	3.3	662	788	1 054	156.3	139.1	162.8	92.3	93.8	113.4
Dominican Republic	337	427	498	6.1	6.3	6.7	4.0	4.4	4.8	10 925	13 535	16 040	198.1	201.2	215.9	129.0	139.6	154.3

ANNEX 5 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATHS AND DALYS PER 100 000 WORKING-AGE POPULATION (≥ 15 YEARS) AND TOTAL POPULATION (ALL AGES), AS A RESULT OF ISCHAEMIC HEART DISEASE ATTRIBUTABLE TO EXPOSURE TO LONG WORKING HOURS, GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

	No. deaths			No. deaths per 100 000 population (≥ 15 years)			No. deaths per 100 000 population (all ages)			No. DALYs			No. DALYs per 100 000 population (≥ 15 years)			No. DALYs per 100 000 population (all ages)		
	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Ecuador	337	267	349	4.1	2.6	3.0	2.7	1.8	2.1	10 211	8 237	10 349	123.8	79.6	88.0	80.5	54.9	62.8
Egypt	5 850	8 093	9 586	13.5	14.5	15.3	8.5	9.8	10.1	175 392	246 844	291 999	403.6	442.2	465.9	254.8	298.3	309.2
El Salvador	234	225	236	6.3	5.3	5.1	4.0	3.6	3.7	6 921	6 484	6 802	185.5	153.4	148.3	117.5	104.9	107.0
Equatorial Guinea	20	20	23	5.6	3.4	3.0	3.3	2.1	1.9	630	687	754	175.1	118.4	99.2	103.9	72.8	62.0
Eritrea	78	90	93	6.3	4.7	4.8	3.4	2.8	2.8	2 493	2 761	2 760	200.3	143.9	141.1	108.8	87.1	81.7
Estonia	71	50	37	6.2	4.4	3.4	5.1	3.8	2.8	2 048	1 284	963	177.6	113.6	87.2	146.4	96.4	73.1
Eswatini	14	18	19	2.4	2.8	2.8	1.4	1.7	1.7	457	506	589	79.8	79.4	86.2	45.5	47.5	52.9
Ethiopia	562	775	992	1.6	1.6	1.6	0.8	0.9	1.0	21 359	27 207	32 873	60.2	56.4	54.4	32.3	31.0	31.7
Fiji	82	82	81	15.6	13.4	13.2	10.1	9.5	9.3	3 032	2 981	2 778	575.4	488.3	453.2	373.9	346.7	318.4
Finland	148	110	87	3.5	2.5	1.9	2.9	2.1	1.6	4 380	3 106	2 424	103.1	69.3	52.7	84.4	57.9	44.1
France	537	373	307	1.1	0.7	0.6	0.9	0.6	0.5	15 932	11 579	9 753	33.3	22.6	18.4	27.0	18.4	15.1
Gabon	33	30	32	4.6	3.0	2.5	2.7	1.8	1.6	793	777	841	109.4	76.5	66.1	64.6	47.8	41.9
Gambia	48	59	63	6.9	6.0	5.3	3.6	3.3	2.9	1 376	1 571	1 731	197.3	159.7	145.0	104.4	87.6	80.5
Georgia	507	448	448	14.7	13.3	13.8	11.6	10.9	11.2	12 859	11 383	10 918	372.3	338.5	336.7	294.8	277.7	271.9
Germany	2 881	2 022	1 752	4.2	2.9	2.5	3.5	2.5	2.1	78 568	54 554	47 256	114.5	78.1	66.3	96.5	67.5	57.5
Ghana	368	498	558	3.3	3.3	3.2	1.9	2.0	2.0	10 065	13 257	15 606	90.7	88.1	88.4	52.2	53.5	54.8
Greece	375	299	237	4.0	3.2	2.6	3.4	2.7	2.2	9 790	7 974	6 640	104.0	86.2	73.0	88.3	73.2	62.6
Grenada	1	2	4	1.5	2.5	4.7	1.0	1.9	3.6	92	125	148	134.3	154.8	174.9	89.5	117.7	134.2
Guatemala	187	233	285	2.9	2.6	2.7	1.6	1.6	1.7	5 895	6 930	8 017	89.9	78.1	75.1	50.6	47.4	48.3
Guinea	184	242	275	4.2	4.4	4.2	2.2	2.4	2.3	5 530	7 400	8 100	125.3	134.9	124.7	67.1	72.6	69.0
Guinea-Bissau	37	36	35	5.6	4.2	3.4	3.1	2.4	2.0	1 024	1 034	1 058	156.2	119.4	103.4	85.2	67.9	59.4
Guyana	39	45	56	8.1	8.9	10.2	5.2	6.0	7.3	1 217	1 496	1 818	253.3	294.5	331.8	163.0	199.6	235.7
Haiti	480	438	612	9.5	6.9	8.6	5.7	4.4	5.6	14 869	14 246	19 102	294.0	224.7	267.0	175.7	143.2	176.2
Honduras	165	208	275	4.4	4.0	4.4	2.5	2.5	3.0	5 220	6 414	8 549	138.9	123.5	137.6	79.4	77.1	92.2
Hungary	316	236	199	3.7	2.8	2.4	3.1	2.4	2.0	9 721	7 074	5 765	114.4	83.7	69.0	95.1	71.3	59.1
Iceland	14	14	12	6.5	5.5	4.5	5.0	4.4	3.6	441	343	335	204.8	135.2	126.3	157.3	107.1	100.8
India	65 918	93 835	115 792	9.6	11.0	12.1	6.2	7.6	8.7	2 152 326	3 070 311	3 766 925	312.1	359.5	394.6	203.7	248.8	284.4
Indonesia	16 867	22 129	24 637	11.5	12.9	12.9	8.0	9.2	9.4	507 769	669 514	738 962	346.4	389.0	388.3	240.1	276.8	282.5

ANNEX 5 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATHS AND DALYS PER 100 000 WORKING-AGE POPULATION (≥ 15 YEARS) AND TOTAL POPULATION (ALL AGES), AS A RESULT OF ISCHAEMIC HEART DISEASE ATTRIBUTABLE TO EXPOSURE TO LONG WORKING HOURS, GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

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	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Iran (Islamic Republic of)	4 745	4 544	4 162	10.9	8.1	6.9	7.2	6.2	5.2	137 015	124 141	109 657	316.2	221.6	181.4	208.8	168.3	137.8
Iraq	1 207	1 327	1 511	9.0	7.7	6.8	5.1	4.5	4.1	34 837	39 959	46 441	259.8	230.9	208.3	148.3	134.4	126.9
Ireland	196	118	104	6.6	3.3	2.8	5.2	2.6	2.2	4 598	2 703	2 406	154.8	74.9	65.5	121.5	59.4	51.2
Israel	112	71	65	2.6	1.3	1.1	1.9	1.0	0.8	3 041	1 973	1 898	71.1	36.9	32.5	51.1	26.9	23.4
Italy	1 078	773	748	2.2	1.5	1.4	1.9	1.3	1.2	29 477	20 768	20 006	60.7	40.7	38.2	52.0	35.0	33.0
Jamaica	67	56	61	3.7	2.7	2.8	2.5	2.0	2.1	1 844	1 526	1 690	102.4	74.4	76.8	69.5	54.3	58.2
Japan	4 326	4 221	3 636	4.0	3.8	3.3	3.4	3.3	2.8	121 138	113 631	97 586	111.5	102.0	87.7	95.0	88.4	76.4
Jordan	244	321	436	7.9	7.1	7.1	4.8	4.4	4.6	7 540	9 828	13 541	243.8	216.5	219.6	147.2	135.3	141.7
Kazakhstan	1 083	1 012	878	10.0	8.2	6.8	7.3	6.2	4.9	33 927	31 244	26 080	313.7	253.1	201.2	227.4	192.2	146.3
Kenya	98	139	194	0.6	0.6	0.7	0.3	0.3	0.4	3 621	4 817	6 621	20.7	20.3	22.8	11.3	11.5	13.5
Kiribati	0	1	3	0.0	1.5	4.1	0.0	1.0	2.7	117	142	165	231.0	215.9	225.3	138.6	138.0	146.6
Kuwait	94	155	257	6.4	6.7	8.3	4.6	5.2	6.5	3 388	5 326	9 015	231.3	231.8	289.5	165.7	178.0	227.8
Kyrgyzstan	210	278	294	6.6	7.3	7.1	4.3	5.1	4.8	5 950	7 708	8 021	185.9	202.8	194.0	120.9	142.2	132.0
Lao People's Democratic Republic	311	374	402	10.3	9.4	8.8	5.8	6.0	5.9	9 393	11 237	12 155	311.5	282.9	265.8	176.4	179.8	177.6
Latvia	251	189	126	12.8	10.4	7.5	10.5	8.9	6.4	7 111	5 047	3 351	363.1	277.3	200.2	298.3	238.2	169.7
Lebanon	414	533	709	15.6	14.5	14.5	10.8	10.8	10.6	10 595	13 580	18 532	400.1	369.6	378.1	275.7	274.2	276.0
Lesotho	42	49	46	3.4	3.8	3.3	2.1	2.5	2.2	1 134	1 256	1 226	93.0	96.7	88.5	55.8	62.9	59.1
Liberia	101	138	134	6.2	6.2	5.0	3.5	3.5	2.9	2 512	3 501	3 468	153.9	157.9	129.9	88.2	90.0	75.6
Libya	369	399	429	10.4	9.0	9.3	6.9	6.4	6.6	10 813	11 624	12 891	305.1	263.2	278.6	201.8	187.6	198.6
Lithuania	268	266	214	9.6	10.0	8.7	7.7	8.5	7.4	7 395	7 253	5 626	264.1	272.4	228.1	211.2	232.2	194.7
Luxembourg	7	6	6	2.0	1.4	1.2	1.6	1.2	1.0	241	176	193	68.2	42.1	39.8	55.3	34.7	33.3
Madagascar	434	473	468	5.0	4.0	3.2	2.8	2.2	1.9	12 008	13 444	13 266	138.9	112.5	90.8	76.2	63.6	53.3
Malawi	194	148	150	3.2	1.9	1.6	1.7	1.0	0.9	5 860	4 321	4 210	97.5	55.4	44.2	52.6	29.7	24.5
Malaysia	1 083	1 407	1 577	7.0	6.9	6.8	4.7	5.0	5.1	33 221	43 997	49 958	214.9	216.5	216.3	143.2	156.0	162.8
Maldives	19	18	17	11.4	6.6	4.5	6.8	4.9	3.6	551	480	452	331.3	175.7	119.9	197.2	131.2	95.1
Mali	192	185	222	3.3	2.3	2.4	1.8	1.2	1.2	5 378	5 534	6 654	91.9	70.0	71.0	49.1	36.8	37.0
Malta	8	9	8	2.5	2.6	2.1	2.0	2.2	1.8	322	267	275	102.1	75.8	73.5	81.8	64.5	63.1
Mauritania	78	97	115	5.3	4.7	4.6	3.0	2.8	2.8	2 078	2 651	3 170	139.9	129.1	127.8	79.0	75.9	76.1
Mauritius	47	38	37	5.3	3.9	3.6	4.0	3.0	2.9	1 644	1 308	1 247	186.8	134.3	121.9	138.7	104.8	98.8

ANNEX 5 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATHS AND DALYS PER 100 000 WORKING-AGE POPULATION (≥ 15 YEARS) AND TOTAL POPULATION (ALL AGES), AS A RESULT OF ISCHAEMIC HEART DISEASE ATTRIBUTABLE TO EXPOSURE TO LONG WORKING HOURS, GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

	No. deaths			No. deaths per 100 000 population (≥ 15 years)			No. deaths per 100 000 population (all ages)			No. DALYs			No. DALYs per 100 000 population (≥ 15 years)			No. DALYs per 100 000 population (all ages)		
	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Mexico	2 394	3495	4 338	3.7	4.3	4.8	2.4	3.1	3.5	72 613	105 255	129 835	111.6	130.9	144.8	73.4	92.3	105.3
Micronesia (Federated States of)	0	3	2	0.0	4.5	2.7	0.0	2.9	1.8	136	143	149	212.3	216.1	199.8	126.6	138.9	135.2
Mongolia	212	189	211	13.6	9.5	9.8	8.8	6.9	6.9	6 393	6 366	7 000	408.8	320.7	324.6	266.7	234.1	229.0
Montenegro	22	23	21	4.6	4.6	4.1	3.6	3.7	3.3	682	651	627	141.5	129.1	122.4	111.2	104.3	100.0
Morocco	2 594	1 775	1 795	13.5	7.7	7.1	9.0	5.5	5.1	73 300	46 509	47 131	382.7	201.2	185.4	254.6	143.8	134.2
Mozambique	259	215	208	2.6	1.7	1.4	1.5	0.9	0.7	8 108	6 496	6 033	82.5	50.9	39.6	45.8	27.6	21.7
Myanmar	1 236	1 792	2 071	3.9	5.1	5.4	2.6	3.5	3.9	36 205	53 396	61 535	114.8	150.8	159.6	77.5	105.5	116.0
Namibia	35	35	39	3.4	2.6	2.6	2.0	1.7	1.7	1 072	1 051	1 091	103.0	79.3	73.3	59.7	49.6	46.3
Nepal	1 724	2 424	2 610	12.2	14.1	14.1	7.2	9.0	9.6	54 415	67 938	71 513	385.0	394.8	387.5	227.3	251.5	262.3
Netherlands	261	151	127	2.0	1.1	0.9	1.6	0.9	0.7	8 106	4 805	3 964	62.4	34.9	28.0	50.9	28.8	23.3
New Zealand	201	141	125	6.7	4.1	3.3	5.2	3.2	2.7	5 769	4 181	3 739	193.4	120.3	100.1	149.5	95.7	80.2
Nicaragua	125	126	152	4.1	3.2	3.5	2.5	2.2	2.4	3 740	3 838	4 533	122.3	98.8	104.1	73.8	65.9	71.9
Niger	255	374	417	4.4	4.5	4.0	2.3	2.3	2.0	7 569	11 228	12 375	129.1	136.5	119.4	66.8	68.2	59.5
Nigeria	2 348	2 971	3 830	3.4	3.3	3.7	1.9	1.9	2.1	68 776	85 567	107 816	99.7	96.5	103.7	56.2	54.0	58.0
North Macedonia	77	68	64	4.9	4.0	3.7	3.8	3.3	3.1	2 332	2 036	1 947	148.2	119.8	112.4	114.6	98.3	93.6
Norway	87	53	41	2.4	1.3	0.9	1.9	1.1	0.8	2 399	1 590	1 334	66.6	40.1	30.9	53.3	32.5	25.4
Oman	130	138	175	9.1	6.1	5.0	5.7	4.5	3.9	4 260	4 573	6 141	298.6	202.3	175.5	187.8	150.4	137.1
Pakistan	10 155	13 101	14 916	12.3	11.7	11.4	7.1	7.3	7.3	302 880	390 130	446 346	366.6	349.0	340.9	212.8	217.4	219.2
Panama	70	100	95	3.4	3.9	3.3	2.3	2.7	2.4	2 040	2 961	2 887	99.0	114.7	98.8	67.3	81.3	71.5
Papua New Guinea	240	292	398	6.8	6.5	7.6	4.1	4.0	4.8	8 526	10 165	13 724	242.0	225.4	261.1	145.8	139.0	165.9
Paraguay	213	232	254	6.5	5.5	5.4	4.0	3.7	3.7	6 605	7 166	7 648	201.7	171.0	161.3	124.1	114.7	112.8
Peru	900	1 101	1 261	5.2	5.4	5.6	3.4	3.8	4.1	26 166	32 336	36 582	150.8	159.4	162.3	98.9	111.4	118.3
Philippines	3 907	5 835	7 307	8.1	9.4	10.4	5.0	6.2	7.0	134 168	198 711	245 242	279.6	320.4	347.5	172.0	211.5	236.6
Poland	1 691	1 388	1 292	5.5	4.3	4.0	4.4	3.6	3.4	53 359	43 811	39 752	172.0	134.8	122.8	138.4	114.3	104.6
Portugal	356	229	190	4.1	2.5	2.1	3.5	2.2	1.8	8 992	5 650	5 002	104.0	62.7	56.2	87.3	53.3	48.4
Qatar	16	35	63	3.6	2.2	2.7	2.7	1.9	2.4	585	1 275	2 235	132.9	78.8	97.3	98.7	68.7	84.2
Republic of Korea	876	874	872	2.3	2.1	2.0	1.8	1.8	1.7	29 868	27 561	27 041	79.4	66.3	61.3	63.0	55.6	53.0
Republic of Moldova	265	269	220	8.2	7.9	6.4	6.3	6.6	5.4	7 222	7 508	6 165	224.5	220.1	180.0	171.8	183.7	151.6

ANNEX 5 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATHS AND DALYS PER 100 000 WORKING-AGE POPULATION (≥ 15 YEARS) AND TOTAL POPULATION (ALL AGES), AS A RESULT OF ISCHAEMIC HEART DISEASE ATTRIBUTABLE TO EXPOSURE TO LONG WORKING HOURS, GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

	No. deaths			No. deaths per 100 000 population (≥ 15 years)			No. deaths per 100 000 population (all ages)			No. DALYs			No. DALYs per 100 000 population (≥ 15 years)			No. DALYs per 100 000 population (all ages)		
	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Romania	1 718	1 373	1 121	9.5	8.0	6.7	7.8	6.7	5.7	46 785	36 216	29 457	259.6	210.0	175.9	211.3	176.9	148.8
Russian Federation	11 370	9 421	7 300	9.5	7.7	6.1	7.8	6.6	5.0	349 200	282 511	211 940	291.7	231.4	176.4	238.5	196.9	145.9
Rwanda	58	37	44	1.3	0.6	0.6	0.7	0.4	0.4	2 472	1 476	1 741	56.0	25.1	25.0	31.2	14.7	14.9
Saint Lucia	3	3	3	2.8	2.2	2.1	1.9	1.7	1.7	147	143	155	138.5	107.0	106.7	93.8	82.1	86.1
Saint Vincent and the Grenadines	0	2	2	0.0	2.5	2.4	0.0	1.8	1.8	92	127	137	124.6	158.2	163.3	85.4	117.3	125.2
Samoa	6	6	5	5.8	5.2	4.2	3.4	3.2	2.6	302	254	235	292.2	221.4	196.9	173.1	136.6	120.8
Sao Tome and Principe	0	0	0	0.0	0.0	0.0	0.0	0.0	0.0	62	59	63	78.3	57.8	54.5	43.6	32.7	31.0
Saudi Arabia	941	1 345	1 755	7.4	7.0	7.3	4.6	4.9	5.4	27 357	40 451	53 971	214.5	209.8	223.4	132.4	147.5	166.4
Senegal	206	239	224	3.8	3.3	2.6	2.1	1.9	1.5	5 731	6 657	6 418	105.8	92.9	75.6	58.5	52.5	42.8
Serbia	552	435	364	7.3	5.9	4.9	5.8	4.8	4.1	15 431	11 570	9 517	204.6	155.7	127.9	162.6	128.7	107.5
Seychelles	0	0	2	0.0	0.0	2.7	0.0	0.0	2.1	107	124	134	185.1	176.0	182.6	132.1	135.9	140.0
Sierra Leone	380	373	374	14.8	10.2	8.7	8.3	5.8	5.1	11 651	11 424	11 373	455.2	312.6	265.9	254.1	178.1	155.2
Singapore	193	209	203	5.9	4.7	4.1	4.8	4.1	3.6	5 835	6 618	6 282	178.2	150.0	126.7	144.8	129.0	111.1
Slovakia	93	66	41	2.1	1.4	0.9	1.7	1.2	0.8	2 725	2 044	1 195	62.9	44.7	25.9	50.5	37.8	22.0
Slovenia	74	56	51	4.4	3.2	2.9	3.7	2.7	2.5	1 999	1 423	1 326	119.4	81.0	75.0	100.6	69.6	63.9
Solomon Islands	17	18	21	7.1	5.8	5.7	4.1	3.4	3.4	659	662	727	275.0	211.7	197.0	159.7	125.4	117.4
Somalia	271	318	390	5.8	5.1	5.2	3.1	2.6	2.7	9 320	10 667	12 913	198.9	170.9	171.6	105.0	88.6	91.0
South Africa	770	857	869	2.6	2.4	2.2	1.7	1.7	1.5	22 750	24 978	24 917	76.5	69.3	62.6	50.6	48.8	44.3
South Sudan	136	165	184	4.0	3.1	2.9	2.2	1.7	1.7	4 377	5 215	5 570	128.0	97.1	89.1	70.6	54.8	51.4
Spain	687	520	480	2.0	1.3	1.2	1.7	1.1	1.0	19 100	14 951	14 108	54.9	37.4	35.5	46.8	31.9	30.3
Sri Lanka	1 318	1 393	1 654	9.6	9.2	10.4	7.0	6.9	7.9	40 330	42 526	49 573	293.2	281.3	312.7	214.8	209.9	235.8
Sudan	2 239	2 548	2 946	14.6	12.9	12.6	8.2	7.4	7.4	76 482	86 059	98 162	499.0	437.0	418.9	280.4	249.1	246.3
Suriname	27	25	27	8.5	6.7	6.6	5.7	4.7	4.8	850	832	915	268.2	222.7	224.0	180.5	157.2	162.0
Sweden	260	188	164	3.6	2.4	2.0	2.9	2.0	1.7	6 558	4 801	4 244	90.5	61.2	52.2	73.8	51.1	43.1
Switzerland	161	113	98	2.7	1.7	1.4	2.3	1.4	1.2	4 098	2 976	2 613	69.5	44.9	36.6	57.4	38.1	31.2
Syrian Arab Republic	988	1 401	1 399	10.2	10.5	11.8	6.0	6.6	8.0	29 406	43 379	43 357	303.8	324.3	367.0	179.2	203.1	248.2
Tajikistan	173	227	273	4.8	4.7	4.9	2.8	3.0	3.2	4 819	6 014	7 401	134.9	124.2	133.7	77.5	79.9	85.4
Thailand	2 304	2 624	2 704	4.8	4.8	4.8	3.7	3.9	3.9	70 441	79 634	82 016	147.2	146.6	144.4	111.9	118.5	118.9

ANNEX 5 (Contd.)

TOTAL NUMBERS OF ATTRIBUTABLE DEATHS AND DALYS, AND NUMBERS OF DEATHS AND DALYS PER 100 000 WORKING-AGE POPULATION (≥ 15 YEARS) AND TOTAL POPULATION (ALL AGES), AS A RESULT OF ISCHAEMIC HEART DISEASE ATTRIBUTABLE TO EXPOSURE TO LONG WORKING HOURS, GLOBALLY AND BY WHO REGION AND COUNTRY, 183 COUNTRIES, FOR THE YEARS 2000, 2010 AND 2016

	No. deaths			No. deaths per 100 000 population (≥ 15 years)			No. deaths per 100 000 population (all ages)			No. DALYs			No. DALYs per 100 000 population (≥ 15 years)			No. DALYs per 100 000 population (all ages)		
	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016	2000	2010	2016
Timor-Leste	33	37	39	6.8	5.9	5.2	3.7	3.4	3.2	1 126	1 148	1 186	231.0	182.7	159.1	127.3	105.0	97.3
Togo	243	269	282	8.7	7.3	6.5	4.9	4.2	3.8	6 492	7 549	7 969	232.3	205.5	182.7	131.8	117.6	106.1
Tonga	3	1	2	5.0	1.5	3.1	3.1	1.0	2.0	129	123	122	214.1	189.0	188.9	131.7	118.3	120.6
Trinidad and Tobago	93	87	90	9.9	8.3	8.2	7.3	6.6	6.5	2 846	2 731	2 783	301.8	259.4	254.5	224.6	205.6	202.0
Tunisia	919	1 006	1 015	13.4	12.3	11.8	9.5	9.5	9.0	23 995	26 179	26 942	350.8	321.1	313.6	247.2	246.2	238.3
Turkey	5 748	5 193	5 335	13.1	9.8	8.9	9.1	7.2	6.7	182 062	152 362	151 813	414.8	288.2	254.7	287.9	210.7	190.2
Turkmenistan	212	215	260	7.4	6.0	6.6	4.7	4.2	4.6	6 646	6 545	8 049	230.9	182.5	205.5	147.2	128.7	142.1
Uganda	163	214	264	1.4	1.3	1.3	0.7	0.7	0.7	5 705	7 528	9 091	47.9	45.6	43.8	24.1	23.2	22.9
Ukraine	6 710	6 653	5 387	16.6	16.9	14.2	13.7	14.5	12.0	179 222	165 831	131 282	442.8	421.7	347.2	367.0	362.1	293.6
United Arab Emirates	106	222	315	4.6	3.0	3.9	3.4	2.6	3.4	4 006	8 679	12 147	172.8	116.9	151.6	127.8	101.5	129.8
United Kingdom	2 238	1 376	1 169	4.7	2.6	2.1	3.8	2.2	1.8	64 357	41 065	35 181	134.9	78.4	64.4	109.2	64.7	53.1
United Republic of Tanzania	472	651	826	2.6	2.7	2.8	1.4	1.5	1.6	14 520	18 551	23 848	78.5	75.9	81.0	43.3	41.8	45.0
United States of America	5 955	4 764	5 186	2.7	1.9	2.0	2.1	1.5	1.6	173 666	142 293	151 545	78.7	57.7	57.9	61.6	46.0	46.9
Uruguay	168	135	117	6.7	5.2	4.3	5.1	4.0	3.4	4 693	3 795	3 348	187.3	145.2	123.7	141.4	113.0	97.8
Uzbekistan	961	1 194	1 289	6.2	5.9	5.7	3.9	4.2	4.1	28 129	35 071	38 106	181.0	173.6	169.2	113.6	123.0	121.2
Vanuatu	5	6	6	4.6	4.1	3.5	2.7	2.5	2.2	248	296	334	229.2	202.8	196.4	134.1	125.3	120.0
Venezuela (Bolivarian Republic of)	1 097	1 228	1 308	6.9	6.2	6.1	4.5	4.3	4.4	35 094	38 863	41 019	219.7	195.0	191.4	145.1	136.6	137.4
Viet Nam	1 762	2 210	2 596	3.2	3.3	3.6	2.2	2.5	2.8	51 380	68 204	82 723	94.0	101.5	114.8	64.3	77.5	88.3
Yemen	1 500	1 865	2 130	16.9	14.1	13.1	8.6	8.1	7.8	48 564	60 775	68 761	546.2	457.9	424.4	279.0	262.5	253.1
Zambia	147	163	171	2.6	2.3	1.9	1.4	1.2	1.0	4 633	4 970	5 197	83.0	69.3	58.6	44.5	36.5	31.8
Zimbabwe	468	328	272	6.8	4.4	3.4	3.9	2.6	1.9	10 830	8 204	6 978	157.3	110.7	86.7	91.2	64.6	49.7

DALYs, disability-adjusted life years.

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