



2014 Global geographic analysis of mortality from ischaemic heart disease by country, age and income: Statistics from World Health Organisation and United Nations



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ABSTRACT

Background: Ischaemic heart disease (IHD) is the leading cause of death worldwide and its prevention is a public health priority.

Method: We analysed worldwide IHD mortality data from the World Health Organisation as of February 2014 by country, age and income. Age-standardised mortality rates by country were calculated. We constructed a cartogram which is an algorithmically transformed world map that conveys numbers of deaths in the form of spatial area.

Results: Of the countries that provided mortality data, Russia, the United States of America and Ukraine contributed the largest numbers of deaths. India and China were estimated to have even larger numbers of deaths. Death rates from IHD increase rapidly with age. Crude mortality rates appear to be stable whilst age-standardised mortality rates are falling. Over half of the world's countries (113/216) have provided IHD mortality data for 2008 or later. Of these, 13 countries provided data in 2012. No countries have yet provided 2013 data. Of the 103 remaining countries, 24 provided data in 2007 or earlier, and 79 have never provided data in the ICD9 or ICD10 format.

Conclusions: In the countries for which there are good longitudinal data, predominantly European countries, recent years have shown a continuing decline in age-standardised IHD mortality. However, the progressive ageing of populations has kept crude IHD mortality high. It is not known whether the pattern is consistent globally because many countries have not provided regular annual data including wealthy countries such as the United Arab Emirates and large countries such as India and China.

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1. Introduction

Ischaemic heart disease (IHD) is the single leading cause of death worldwide, accounting for 11.2% of all deaths globally in 2011 [1], the last year for which a reliable estimate is available. Our group has previously studied the global epidemiology of IHD from 1995 to 2009 [2]. In this paper we provide an update, reporting on the burden of IHD worldwide from 2001 to 2012 using mortality data collected by the World Health Organisation (WHO). We present IHD mortality by country, age and income category.

Our update also provides a geographical analysis of IHD mortality [3] using a cartogram, a world map in which the area of each country is algorithmically transformed so that it is proportional to a measured variable for that country, in this case, number of deaths. The value of cartograms over and above typical map display is that it illustrates the

spatial representation of a variable of interest whilst retaining the semblance of a world map.

Analysing the emerging global pattern of IHD mortality at regular time intervals is necessary to inform and update public health strategy. Collection of raw mortality data categorised by cause of death is integral to this, but limited raw data seem to be available even from countries whose resource position might be expected to permit an exemplary role in the promptness and completeness of data collection and disclosure. Public health bodies such as the WHO and the Institute for Health Metrics and Evaluation (IHME) therefore use sophisticated methods to provide estimates [4,5]. The disadvantage of estimation is the inevitable introduction of some degree of error [6]. In this paper, we highlight countries with limited available data.

2. Methods

2.1. Data sources

IHD mortality and population data were extracted from the online WHO mortality database. This comprises all deaths registered by national civil registration systems

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