



# Health in Papua New Guinea and Indonesia: changes since 1990 and likely causes

By Ian Anderson and Alan Lopez  
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The main causes of death and disability in a country can change dramatically in a relatively short space of time. This could be due to many factors including ageing, urbanisation, health service coverage, and lifestyle factors (especially smoking, diet, alcohol and exercise). Such changes in the burden of disease have important implications for the health and welfare of individuals and society, especially since many aspects of premature death and disability are preventable, or can at least be delayed. Rapid changes in the main causes of death and disability also have important implications for resource allocation and investment decisions by developing country governments and their development partners: the size and skill mix of health workers needs to adapt to changing priorities; the shift to chronic diseases may place additional burdens on already overcrowded hospitals; there may well be political pressure for governments to fund “free” but expensive treatment such as dialysis, which may ultimately be unaffordable for lower-middle income countries.

The Institute for Health Metrics and Evaluation (IHME) at the University of Washington has contributed to international understanding of how the disease burden is thought to be changing in individual countries through its recently published [Global Burden of Disease](#)

(GBD) country profiles. Lack of good quality - even basic - health data makes the exercise very challenging. There is simply not the data to directly measure the level, trends, and causes of disease in these countries. The estimates are therefore modelled based on the likely presence and distribution of determinants and other factors which affect disease and injury occurrence in populations such as income, access to health services, and education. While emphasising the uncertainties, IHME says the GBD country profiles involve 'the largest systematic scientific effort in history to quantify levels and trends of health loss due to diseases, injuries, and risk factors'. The exercise has involved nearly 500 researchers in 50 countries, with substantial financial support from the Bill and Melinda Gates Foundation.

The IHME GBD country profile for **Indonesia** illustrates the possible rapid changes in cause of premature death. In 1990, lower respiratory infection was estimated to be the leading cause of premature death in Indonesia, followed by tuberculosis and diarrheal disease. Together, these three diseases accounted for 36% of all premature deaths. By 2010 the leading cause of premature death in Indonesia was thought to be stroke. Tuberculosis was still the second leading cause of premature death, but road injury has now displaced diarrheal disease as the third largest cause of premature deaths. (Together, the three leading diseases in 2010 accounted for 28.4% of premature deaths). Premature death is not the only thing estimated by IHME or of concern to individuals and society: illness and disability are also important. In 2010 ischemic heart disease, diabetes mellitus and low back pain were in the 10 leading causes of disability and illness in Indonesia but were not even in the top 10 list in 1990. Diet, high blood pressure and smoking are now the three risk factors that account for most of the overall disease burden in Indonesia. The leading risk factor for children under five years in 2010 was being underweight. The leading risk factor for adults 15-49 years was occupational risk.

The country profile for **Papua New Guinea** makes an interesting contrast to Indonesia. Lower respiratory infection is estimated to be the leading cause of premature death in 2010, as it was in 1990. But diabetes has now risen to the second leading cause of premature death in 2010 (a 171% increase) from its ninth place ranking in 1990. Protein energy malnutrition has fallen from the fifth leading cause of premature death in 1990 to 15<sup>th</sup> in 2010. HIV and AIDS was the fifth leading cause of premature death in 2010 but was ranked just 60<sup>th</sup> in 1990: a 2791% increase. Lower respiratory infections, diabetes mellitus and tuberculosis are the three leading causes of ill health and disability. High fasting plasma glucose (a predictor of diabetes), tobacco smoking and household air pollution from solid fuels are the leading risk factors for premature deaths and illness. The leading risk factor in 2010 for children under five years of age is being underweight, and for adults 15-49 years

was alcohol use.

A brief mention of **Australia** is of interest. Eight of the 10 leading causes of premature death in 2010 are non-communicable diseases, similar to the situation in 1990. Ischemic heart disease is still the leading cause of death, as it was in 1990. Self-harm is the fifth leading cause of premature death in 2010 (as it was in 1990) just in front of road injuries. Ischemic heart disease, low back pain and chronic obstructive pulmonary disease are the three leading causes of illness and disability. Falls and neck pain are now in the top 10 list of illness and disability but were not in 1990. Key risk factors for premature death and disability are diet, high body mass index and tobacco smoking.

The GBD estimations provide a useful guide to thinking about the rapid changes in the level, trends, and causes of health outcomes, especially in developing countries. It is therefore a useful 'global public good' for those interested in international health issues. It is also a useful resource for Ministries of Finance and Planning seeking to anticipate how changing disease patterns may drive costs and expenditure patterns in the health sector, and the potential benefits of better primary and secondary prevention.

But the GBD estimates also highlight the need for developing countries, and their development partners, to invest in improving basic health information systems. Even the best modelling is not a substitute for good quality data. Too many countries, including many in Asia and the Pacific, lack basic data on population health, risk factors, or even vital registration statistics. That needs to change, and change urgently, if we are to effectively monitor epidemiological transition in countries and the impact of measures to control disease, injury and risk factor exposure in populations.

*Further details of the country GBD profiles are available [here](#).*

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