Health varies widely across different regions of Mexico

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A new study of the burden of disease and injury across Mexico has found that the south suffers the highest rates of infectious and nutritional diseases, injuries, and non-communicable diseases. The study, by researchers at Harvard University, the World Health Organization (WHO), and Mexico's National Institute of Public Health, is reported in this week's *PLoS Medicine*.

Gretchen Stevens (Harvard University, Boston, MA, USA, and the WHO, Geneva, Switzerland) and colleagues estimated deaths and loss of healthy life years caused by various diseases and injuries for Mexico and its states using data from death registers, censuses, health examination surveys, and epidemiological studies. Loss of healthy life years was measured using a metric called "disability-adjusted life years" (DALYs)—one DALY is equivalent to the loss of one year of healthy life because of premature death or disability. They also identified the major risk factors for these diseases and injuries across the country.

Nationally, non-communicable diseases (particularly heart disease, diabetes, stroke, and liver cirrhosis) caused 75% of deaths and 68% of DALYs. Undernutrition, infectious diseases, and problems occurring in mothers and infants around the time of birth (maternal and perinatal diseases) caused 14% of deaths and 18% of DALYs. The leading risk factors for disease in Mexico were being overweight, having high blood glucose, and alcohol use.

When the researchers studied different regions of the country—an

analysis called a "subnational burden of disease study"—they found that Mexico City had the lowest death rate whereas the relatively undeveloped Southern region of Mexico had the highest, particularly among young children. In Chiapas, the most southerly state of Mexico, undernutrition and infectious, maternal, and perinatal diseases caused nearly a third of DALYs. In addition to the highest infectious disease burden, the Southern region also had the highest noncommunicable disease and injury burden per head of population.

As poor countries become richer, they experience a change in the pattern of disease away from infectious diseases and malnutrition and toward noncommunicable diseases, a change known as the "epidemiological transition." The study's findings indicate that Mexico as a nation is at an advanced stage of the epidemiological transition—because of its improved economic status, the burden of disease caused by infectious diseases and undernutrition has decreased, and noncommunicable diseases now cause the largest share of the total burden of disease. However, liver cirrhosis and diabetes, and correspondingly the alcohol use, overweight and obesity and high blood glucose risk factors are more important in Mexico than in other countries at broadly similar stages in the epidemiological transition. At the same time, the study also shows that the poorest regions of the country, which have the highest ov erall burden of disease, are lagging behind the richer regions in terms of their position in the epidemiological transition.

In a commentary on this study, Martin Tobias from New Zealand's Ministry of Health, who was not involved in the research, says: "Mexico has taken the lead in demonstrating how subnational burden of studies can be done and how their output can be used to inform policy. Other countries would benefit from adopting a similar approach."

Citation: Stevens G, Dias RH, Thomas KJA, Rivera JA, Carvalho N, et al. (2008) Characterizing the epidemiological transition in Mexico:

National and subnational burden of diseases, injuries, and risk factors. PLoS Med 5(6): e125. -- medicine.plosjournals.org/perl … journal.pmed.0050125

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