

Chronic conditions—not infectious diseases—are top five causes of early death in China

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Chronic diseases, such as stroke, ischemic heart disease, and lung cancer, now represent the leading causes of premature death in China, according to a new scientific study.

The rise in [non-communicable diseases](#) reflects declines in maternal and [child mortality](#) over nearly three decades, largely the result of economic growth and increasing levels of education. In addition, China has instituted national programs targeting [infectious diseases](#).

"Like many countries, China has reached a tipping point over the past three decades," said Dr. Maigeng Zhou, a lead author on the study and Deputy Director, National Center for Chronic Non-Communicable Disease Control and Prevention at the Chinese Center for Disease Control and Prevention. "Going forward, the burden of chronic health problems, especially among the elderly, will far exceed infectious diseases."

A part of the Global Burden of Disease (GBD), the study spans 1990 to 2017, filling a major gap in understanding health problems at the local level. The analysis, published today in the international medical journal *The Lancet*, provides comparable estimates of mortality, disability, and associated [risk factors](#) for 34 provinces by age and sex. The GBD produces estimates for 359 diseases and injuries and 84 risk factors.

Zhou and co-authors found stroke and ischemic heart disease replaced lower respiratory infections and neonatal disorders as the leading causes of disease burden between 1990 and 2017.

In addition to stroke, [ischemic heart disease](#), and lung cancer, the top five causes of premature death include chronic obstructive pulmonary disease (COPD) and liver cancer.

Compared to countries with similar levels of development, such as Russia, China has unusually high levels of stroke, COPD, [lung cancer](#), liver cancer, neck pain, and stomach cancer. All provinces had higher-than-expected cases of liver cancer, with rates of disability-adjusted life years (DALYs) between two and seven times higher than would be expected based on their level of development.

The analysis demonstrates considerable variation in health problems at the provincial level, confirming that one's health depends on where one lives. People in urban, coastal, and wealthier provinces in eastern China

generally are healthier than those in rural and poorer areas in the west.

"We are committed to achieving the goals of the Healthy China 2030 Plan," said Dr. Xiaofeng Liang, Deputy Director at the Chinese Center for Disease Control and Prevention, referring to an initiative announced in 2016 to improve health, control risk factors, and improve and enlarge the nation's health care system. "These detailed provincial findings will help us tailor evidence-based policies to the health needs of local communities."

Liver cancer ranked among the top five causes of DALYs in seven provinces, but in 11 provinces it did not rank in the top 10. The rank order for road injuries ranged from third to 20th leading cause of DALYs across all provinces; whereas hypertensive heart disease saw variation in rank order from seventh to 56th leading cause.

Nationally, smoking is the top risk factor in 21 provinces, and is ranked the second- or third-leading risk in all remaining provinces. Exposure to some risk factors is rising, particularly high blood sugar, [high blood pressure](#), high body mass index (BMI), and, in many provinces, outdoor air pollution.

Additional findings include:

- The suicide rate for females fell from 21.5 deaths per 100,000 people in 1990 to 7.5 deaths in 2017. This trend is partly explained by urbanization and development as well as improved opportunities for women and young people. Males also saw a decline, but to a lesser degree, dropping from 17.0 deaths per 100,000 to 10.7 deaths over the same time period.
- After 2000, rates of diabetes increased more rapidly due to changing lifestyles, including increased consumption of red meat and decreased levels of physical activity. National diabetes rates

increased by more than 50%, from 4,206 prevalent cases per 100,000 in 2000 to 6,336 prevalent cases in 2017.

- The maternal mortality ratio declined by 86% during the study period, falling from 95 to 14 maternal deaths per 100,000 live births. At the same time, the under-5 mortality rate decreased by 76%, from 50 to 12 child deaths per 1,000 live births.
- The top three disabling conditions in 1990 and 2017 were musculoskeletal disorders, mental disorders, and sense organ diseases (e.g., vision loss, hearing loss).
- High blood pressure accounted for 2.5 million Chinese deaths in 2017, with nearly all (96%) resulting from cardiovascular diseases (CVD).
- Beijing had significantly lower rates of premature [death](#) (age-adjusted) than the national average across all top 20 causes.
- Ten provinces in mainland China had DALYs rates (age-adjusted) at least 30% lower than would be expected given their level of development. They include Chongqing (37%), Anhui (35%), Zhejiang (34%), Fujian (33%), Shanghai (33%), Guizhou (32%), Ningxia (31%), Jiangsu (30%), Hainan (30%), and Beijing (30%).

The study is entitled "Mortality, morbidity, and risk factors in China and its provinces, 1990-2017: a systematic analysis for the Global Burden of Disease Study 2017."

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