Post-SARS, infection rates in China have steadied, but fast-growing and common infections now need attention

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Following the severe acute respiratory syndrome (SARS) outbreak in 2003, China stepped up its prevention and control methods for all infectious diseases, and rates of infection have levelled off since 2009. However, better measures are needed to tackle the most common diseases - including hand, foot and mouth disease, hepatitis B, and tuberculosis - and those that are rapidly increasing, such as hydatid disease, hepatitis C, syphilis, and HIV.

A new study, conducted by researchers at Zhejiang University, China and published in *The Lancet Infectious Diseases*, is the first to report long-term infectious disease trends in China since the SARS outbreak and tracks 45 diseases over ten years in roughly 1.3 billion people, with data from the national notifiable infectious diseases report database.

From 2004 to 2013, there were almost 55 million infectious disease cases and more than 132500 deaths as a result.

Overall, the incidence of cases per year increased between 2004 and 2013 from 300.5 cases in every 100000 people in 2004, to 483.6 cases per 100000 in 2013. However, the pace slowed from 2009 onwards - with the annual percentage increase of incidence going from 6.2% in 2004-2008 to 2.3% between 2009-2013. Deaths showed a similar trend, with the research showing a stable death rate after 2009.

The authors of the study propose that these improvements come as a result of a number of measures implemented in recent years, after the SARS outbreak revealed shortcomings in China's prevention and control strategies.

"In recent decades, the overall incidence and mortality of infectious diseases have shown a striking decline in China," said senior author Professor Lanjuan Li, Zhejiang University, China. "This sharp fall is linked to effective new strategies to prevent and control the spread of infectious diseases in China, such as improved water supply and sanitation, vector control, a larger immunisation programme, and enhanced screening for infectious diseases."

Of the 45 infectious diseases, ten became more common between 2004-2013, 20 became less common, 11 remained the same, and four were emerging diseases.

Two-thirds of the cases recorded in the ten years of the study (66%) were caused by hand, foot and mouth disease, hepatitis B and tuberculosis - which were the three most common infectious diseases. The fastest growing infectious diseases were hydatid disease, hepatitis C, syphilis and HIV infection (increasing by 24%, 19.2%, 16.3%, and 16.3% each year from 2004-2013, respectively), and those with the highest death rates were rabies, avian influenza A H5N1, and plague.

In addition, certain provinces in China's remote border regions were home to factors that aided the development and spread of infectious diseases - such as limited healthcare access, poor public health programmes and infrastructure, poverty, and poorer screening and detection of infectious diseases - highlighting the need for improved prevention and control measures in these regions.

The researchers note that that the threat of infectious disease continues

to grow as a result of increasing antimicrobial resistance, changing behaviours and increased travel. For example, one in ten people in China move from poor rural areas to urban centres for better economic opportunities, in turn promoting transmission of disease from rural to urban areas.

"To counter the rise of hepatitis C, hydatid disease, syphilis, and HIV infection in China, we need improved screening, vector control, and immunisation, as well as reduced treatment costs," said Professor Li. "The proportion of cases and deaths from various infectious diseases have shown changing patterns in the post-SARS era, and personalised strategies should be applied to benefit children, the elderly, men, and those living in high-risk regions."

The authors note that the estimates of the study could be affected by different reporting methods in each province and by individuals with some infectious diseases being more likely to avoid screening as a result of stigma. In addition, improved surveillance and tracking of infectious diseases could explain a part of the increased incidence.

Writing in a linked Comment, Dr Katherine Gibney, University of Melbourne at the Peter Doherty Institute for Infection and Immunity, Australia: "The epidemiology and comparative burden of communicable diseases determines which diseases warrant public health resources and intervention. In a country as large as China, identification of the communicable diseases causing the greatest burden and the population groups most affected by specific diseases is a massive, and very important, undertaking... The longitudinal analysis of ten years of national surveillance data represents a comprehensive picture of the epidemiology of nationally notifiable diseases in modern China. The findings should be used by public health decision makers - both provincial and national - to prioritise diseases and populations for public health action."

More information: *The Lancet Infectious Diseases*, www.thelancet.com/journals/lan … fulltext?elsca1=tlpr

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