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Infectious disease trends in China since the SARS outbreak

The 2002–03 severe acute respiratory syndrome (SARS) outbreak has changed public health in many ways in China and worldwide. This change is reflected in China’s effective response to outbreaks has changed public health in many ways in China.

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1 Global Action Fund for Fungal Infection. Improving outcomes for patients with fungal infections across the world: a roadmap for the next decade. April, 2017.
programmes for specific diseases, and maintenance of a
close collaboration with international partners.1 Since the
implementation of these efforts, how has the situation
developed regarding infectious disease epidemics in
China? What can the world learn from China’s approach
to infectious disease control? What role can China play in
global public health?

A study published in The Lancet Infectious Diseases2
addressed these issues and aimed to explore the epidemic
features during the first decade after the SARS outbreak
(2004–13) by analysing surveillance data on 45 notifiable
infectious diseases. In their Article,2 Shigui Yang and
his colleagues reported that the overall incidence of
infectious diseases in China has maintained an increasing
trend (annual percentage change 5·9%). Of 45 notifiable
diseases, 20 presented a striking decreasing trend,
while ten other diseases continued to rise. What are the
implications of these comprehensive findings on various
diseases?

In an effort to combat emerging infectious diseases, the
notifiable disease list in China was made adjustable on
the basis of the threat assessment of the specific disease.
Since 2004, three emerging diseases have been added
as mandatory report diseases: hand, foot, and mouth
disease in 2008; influenza A H1N1 pdm09 in 2009; and
human infection with the avian influenza A H7N9 virus
in 2013. Excluding these three new diseases, the overall
incidence of the remaining consistently reported diseases,
estimated by a joinpoint regression model,3 showed a
two-stage feature of opposite changes. In the first stage,
the overall rate of reported infectious diseases rose rapidly
in 2004–06, with an annual percentage change of 8·9%,
which is probably attributable to the improved sensitivity
of the surveillance system by the adoption of a new web-
based reporting approach since the SARS outbreak.1 In the
second stage, the overall trend showed a slight reduction
with an annual percentage change of −0·7% in 2007–13.
Whether or not the three newly added diseases are
considered, the pattern of the overall trend of infectious
disease occurrence showed significant differences
between the two stages (figure). Unfortunately, this
fact was overlooked in Yang and colleagues’ report,2 but
should be noted by readers.

From 2004 to 2013, similar to the striking rate of
increase in annual gross domestic product in China
(7·7–11·9%),4 the epidemic trend of many infectious
diseases showed notable increases or decreases,
comprehensively driven by evolving socioeconomic,
environmental, and causal factors.

Active introduction of new vaccine-preventable diseases
into the National Immunization Program in China, which
included 15 diseases since 2007, led to a sharp reduction
in the overall number of cases of vaccine-preventable
diseases according to routine surveillance data and the
nationwide seroprevalence survey.5,6

In response to WHO’s activity in the worldwide fight
against neglected tropical diseases, a large-scale, active,
case-screening strategy was adopted in China for specific
parasitic diseases (eg, schistosomiasis and hydatid),
which led to a large increase in reported cases. However,
the national survey of parasitic infection showed that

![Temporal trend of overall rate of reported cases of notifiable infectious diseases in China, 2004–13](image-url)
the real overall incidence of parasitic diseases declined constantly. Under the leadership of the national and local governments and implementation of a one-health strategy, along with close joint multisectoral collaboration between the departments of health, agriculture, and the environment, some parasitic diseases have reached or approached elimination status. The elimination of filariasis throughout China was certified in 2007 by WHO. Furthermore, the goal of nationwide malaria elimination by 2020 was established, and schistosomiasis is close to being eliminated.

Additionally, in China, screening of blood donors and surgical patients for HIV, hepatitis B virus, hepatitis C virus, and syphilis have been successively required since the 1990s, which facilitated the active identification of new and past infections of these pathogens. However, further studies are needed to assess actual incidence trends.

As a whole, due to the unprecedented rapid development of urbanisation and industrialisation in China in the past three decades, the pattern of interaction between human beings and pathogens has changed greatly, substantially altering disease epidemiology. Therefore, to better understand the epidemiological features, changing trends, and severity of diseases, a well-functioning public health surveillance system, integrated with population-based studies on specific diseases, should be continually intensified to effectively plan, implement, evaluate, and improve disease control strategies. China’s experience can be shared with the rest of the world.

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**Threats of vector-borne zoonotic disease in Europe: dogs, drosophilids, and Oriental eye worm**

Mosquito and tick ecology has changed in parts of Europe over the past 20 years and threatens to the UK from diseases such as dengue, West Nile virus, tick-borne encephalitis, and Crimean-Congo haemorrhagic fever have to be considered. But health professionals must also be aware of increasing risks from less well known vector-borne zoonoses that have emerged in Europe during the same timeframe. These zoonotic conditions include certain parasitic disorders of dogs that are well known to veterinarians, such as visceral leishmaniasis and dirofilariasis. However, it is the spread of an apparently new disease that affects the eyes, trachoma, which we wish to highlight.

During the past 20 years, cases of human and canine visceral leishmaniasis (caused by the protozoan *Leishmania infantum*, which is transmitted by sandflies) have increased throughout historical endemic foci in coastal Mediterranean regions. Furthermore, the disease has spread beyond these regions into new areas at more northerly latitudes, including northern Italy and Madrid, Spain. Like visceral leishmaniasis, canine dirofilariasis, which is caused by mosquito-transmitted filarial worms, is also often diagnosed in southern Mediterranean regions. Until 1999, most cases in human beings originated from Italy, France, Greece,