

outcomes. Under these circumstances, it is not surprising that only a small number (16) of heads of state, half from countries not included among the top 30 WHO high-burden countries, attended the session at the UNGA. The lesson is that until progressive and forward-looking thinking replaces the prevailing pessimistic outlook, attracting interest from those who have the power to make the difference will be difficult.

The solution must begin with a complete rethink of the tuberculosis image (ie, public and politician perceptions of the disease) and the development of intelligent messages to media, politicians, and donors. Achievements and hope need to be promoted and properly balanced with an acknowledgement of the urgent challenges ahead. WHO, activists, and stakeholders have a major responsibility and role to play in this cultural revolution. Secondly, civil society engagement and ownership are essential: politicians pay attention to self-empowered, vocal communities. Finally, the bold accountability system requested by the UNGA is crucial: technical discussions might, as usual, start at the World Health Assembly (WHA) but eventually they must reach country leaders and ministers of finance. To achieve this aim on a large scale, ideally these messages should be reported at UNGA and to other key bodies (such as the G20), when high-burden rapidly growing economies, such as the BRICS (Brazil, Russia, India, China, and South Africa), meet with the Organisation for Economic Co-operation and Development countries.

Accountability must be multisectoral. Universal health coverage and social protection are a prerequisite for the elimination of tuberculosis. However, ending tuberculosis also requires general development, good nutrition, improved living conditions, clean energy, organised urbanisation, gender equality, societal equity, and sustained domestic investment. A good accountability framework enlisting all the responsible entities should drive the establishment of a new structure overseeing and urgently assessing government financing and operations in each country; commitment by WHO and

UN agencies; investment by financial mechanisms, donors, and philanthropies; action by non-governmental organisations and civil society; and contributions by the research and private sectors. Given the disease burden, the creation of an extraordinary UN Tuberculosis Commission of reputable, scientifically excellent, intellectually honest people is long overdue; after all, no other infectious disease kills as many people as tuberculosis. This Commission, established by the UN Secretary-General and supported by more scientific bodies, including WHO and the *Lancet* Commission,⁹ would report regularly via existing mechanisms, such as the WHA and the UNGA, but also through ad-hoc regular meetings of stakeholders that assess objectively comprehensive reports produced by a credible multisectoral, multidisciplinary observatory.⁷ Its reports will ultimately propose corrective actions and expose those who are not contributing towards the common final aim of tuberculosis elimination.

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Veterinary infectious diseases control in China

The model of infectious disease prevention and control changed substantially in China after the outbreak of severe acute respiratory syndrome (SARS) in 2003.¹ The

outbreaks and spread of highly pathogenic avian influenza (HPAI) A H5N1 across China in 2004, which damaged the poultry industry, posed a severe threat to human lives,

and substantially affected animal and zoonotic disease prevention and control in China, should not be ignored.

In 2004, in response to the HPAI outbreaks, for the first time the Chinese central government set up a Veterinary Bureau under the Ministry of Agriculture and appointed a Chief Veterinarian.² In the following years, the Chinese government advanced wide reforms of the veterinary sector, including gradual implementations of Official Veterinarian System and Veterinarian License System;³ accelerating the amendment of the law of the People's Republic of China on Animal Epidemic Prevention (which passed in 2007 and, for the first time, stipulated that administrations at and above the county level had to establish Animal Disease Prevention and Control Centres specialised in the prevention, control, and eradication of animal diseases including zoonoses);^{3,4} and improving China's capacity for animal disease (including zoonoses) prevention and control^{3,5} by taking actions similar to those implemented by the health sector after the SARS outbreak⁶ (eg, capacity building for laboratory testing, and increasing investment on the development of vaccines and diagnostic reagents). Notably, all these changes in the veterinary sector have occurred after the unprecedented HPAI H5N1 outbreaks, which revealed the serious shortcomings of China's animal disease prevention and control system.⁵

Subsequently, the efforts have been rewarded. For example, after nationwide compulsory immunisation of domestic poultry against infection with H5N1 viruses since October, 2005,⁷ or avian influenza A H7N9 viruses since the second half of 2017,⁸ there have been a sharp reduction in H5N1 outbreak incidents in poultry⁷ and fewer H7N9 virus detections in poultry and environment samples, leading to a decrease in human infections.^{8,9} Furthermore, a striking decrease in human rabies cases in China has been observed since 2004,¹ which might be attributable to the comprehensive measures (requiring multisectoral collaboration between departments of agriculture, dog management, and health) adopted against this zoonotic disease, such as intensified rabies vaccination in dogs, controlling stray dogs, enhancing rabies virus surveillance in animals, and establishing a diagnostic laboratory for rabies, by the Ministry of Agriculture, in 2005. This laboratory was designated a World Organization for Animal Health Reference Laboratory in 2012. To boost the control of major animal diseases (eg, foot and mouth disease,

porcine reproductive and respiratory syndrome, hog cholera, Newcastle disease, brucellosis, echinococcosis, bovine tuberculosis, rabies, schistosomiasis, and avian influenza) China developed the first medium-term and long-term (2012–20) national plan for animal disease prevention and control in 2012.¹⁰ With sustained efforts by the veterinary sector, glanders and equine infectious anaemia have approached the elimination status. Notably, glanders (first described in China in the *Handbook of Prescriptions for Emergencies* [Zhōu Hòu Bèi Jí Fāng] written over 1500 years ago) will probably be the first zoonosis to be eliminated in China. Additionally, controlling zoonotic diseases at the animal source to reduce the risk of their transmission to humans has increasingly become a predominant guideline in China's zoonosis prevention and control.

In China, however, it was reported that brucellosis and hydatid disease (echinococcosis) had an increasing incidence in humans in 2004–13,¹ and from 2014 to 2016, more than 47000 incident cases of human brucellosis and more than 3300 incident cases of human echinococcosis per year were reported. Thus, their control situations are worrisome, although mandatory vaccinations of livestock against brucellosis and echinococcosis in the worst-affected areas of China have been required by China's compulsory immunisation plan against animal epidemics since 2016. Furthermore, in the past few months, human *Streptococcus suis* and anthrax infections transmitted from livestock, and the first emergence and rapid spread over more than ten provinces of China (by Nov 18, 2018) of the deadly African swine fever across hog herds, have caused great public concern over China's veterinary capacity for animal and zoonotic disease control and prevention. Indeed, it should be pointed out that the available veterinary services across China are insufficient for the demands of economic and social progress and development. Past development of China's veterinary services could not catch up with the ever-growing needs of veterinary medicine's role in protecting animal health, public health, food safety and security, and environmental and ecosystem health

It has been recognised that low-level civil society participation has become a major constraining bottleneck in the promotion and development of China's veterinary services. Therefore, the Ministry of Agriculture directs veterinary departments to

strengthen China's veterinary services by mobilising civil society participation in the diagnosis, screening, detection, treatment, and prevention of animal diseases (including zoonoses); food quality testing; safe handling and disposal of sick and dead domestic animals; safe disposal of unused or expired pharmaceutical products; and by continuously improving their service quality to better meet the various needs of society.¹¹ A new pattern of a combination of government-dominated public (not-for-profit) and market-oriented (for-profit) veterinary services is expected after 5 years of endeavour. Therefore, China's veterinary medicine is entering an exciting new era and about to undergo another major development.

Since 2018, mobilising civil society participation in veterinary services has been incorporated into the Expanded Performance Indicator System for Major Animal Disease Prevention and Control (an annual performance evaluation of veterinary departments across China).¹² However, it should be noted that it is just a self-evaluation within the Ministry of Agriculture. To focus on mobilising civil society participation and on, ultimately, serving the various needs of society, a combination of self-evaluation and third-party evaluation considering people's satisfaction would be a better way to assess progress.

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