

# The “Chinese Mode” of organ donation and transplantation: moving towards the center stage of the world

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Since the success of the first organ transplantation in 1954, millions of patients with fatal organ failure have been rescued by this advanced technology in medicine. Unlike other medical specializations, organ transplantation not only involves medical professionals and patients, but more importantly relies on altruistic organ donors. Adaptive to the comprehensive atmosphere of social, economic, cultural, religious and ethical circumstances, the activity of organ donation and transplantation varies in different countries and areas, and may dynamically change over time (1). Nevertheless, the Declaration of Istanbul and WHO Guiding Principles on human organ transplantation must be complied with (2).

Organ transplantation was initiated in 1960s in China, and has been extraordinarily developed and expanded during the past decades due to the unmet demand from hundreds of thousands of patients with end-stage organ diseases. The Chinese government has been striving to establish a legal, ethical and sustainable system to achieve national self-sufficiency in organ donation and transplantation (3), starting with the Declaration of Guangzhou in 2006 as the symbol advocating the national reform. Following the implementation of the Regulation on Human Organ Transplantation in 2007 and other indispensable legislations thereafter, as well as the important success of pilot trials conducted by representative institutions from 2010 to 2012, the national program of voluntary citizen-based organ donation and transplantation had been established and eventually executed throughout the country (4,5). Besides eliminating utilization of organs from executed prisoners, this transparent and supervised system rapidly led to remarkable achievements in organ donation. Up to

2017, there have been 15,131 donors who provided over 42,000 organs for transplantation. The organ donation rate has been dramatically elevated by 124 times in the past 7 years, from 0.03 per million population (PMP) in 2010 to 3.71 PMP in 2017. Approximately, 300,000 people have voluntarily registered themselves as organ donors. In 2016, 4,080 cases of organ donation from deceased donors were accomplished, and over 13,000 organ transplants were completed, which was the second largest annual transplant number in the world. In 2017, there were 5,135 cases of accomplished deceased organ donation, and the number of organ transplant was over 16,000, increased by over 20% compared to that in 2016.

This national program of organ donation and transplantation not only adheres to WHO Guiding Principles and the Declaration of Istanbul (2), but also respects the cultural and social values of Chinese people. It is well acknowledged by international societies, and is called “Chinese Mode” by WHO. The main features of “Chinese Mode” have been well demonstrated by Jiefu Huang, the pioneer of the reform of organ donation and transplantation in China (6). Briefly, it is a nationwide system working under a supportive legal framework, and is supervised and scientifically managed by multiple levels of regulatory authorities. It insists on the principle of voluntary and remunerative donation, and meanwhile advocates humanitarian assistance and humanistic spirit of organ donation. One of the characteristic techniques of “Chinese Mode” is the unique approach of organ donation, i.e., donation after brain and cardiac death (DBCD), which is respectful of the current cultural and societal reality in China, and meanwhile is consistent with international

standards. The Organ Donation and Transplantation Task Force proposed by Jiefu Huang will promote a worldwide model of ethical propriety consistent with WHO Guiding Principles. As the WHO commented, "*many solutions worked out in China can serve as models for other countries facing similar challenges*".

In China, high-standard professional service has been provided to ensure comparable international transplant outcome, yet with much lower medical cost the development of deceased organ donation stimulates and promotes innovations in transplant technology, such as the application of extracorporeal membrane oxygenation (ECMO) in DBCD donors, multivisceral organ transplantation (7) and machine perfusion. Nevertheless, the most outstanding and representative advance is the ischemia-free organ transplantation for the first time in the history of human transplantation (8), as demonstrated by Dr. Xiaoshun He at 2017 China-International Organ Donation Congress in Guangzhou. The success of 14 ischemia-free liver transplants provides strong proof that this technology offers opportunities to optimize transplant outcome and maximize donor organ utilization.

Despite the overall improvements and achievements, China still faces great challenges to achieve self-sufficiency in organ transplantation. Full efforts are needed to further increase the organ donation rate. More certificated transplant centers are needed to provide professional services. The constructed national system needs to mature to become fully functional.

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### Footnote

*Conflicts of Interest:* The author has no conflicts of interest to declare.

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