

The Foundation and the Practice of an Education Pathway for Organ Donation in China

SUMMARY

In accordance with the guiding principles of the World Health Organization (WHO) on organ transplantation [1] China has established a system to foster the practices of organ donation and transplantation. Education and training of healthcare professionals and stakeholders in the organ donation process is an important part of

the development. A promising outcome was demonstrated by a rapidly rising trend in the annual number of organ donations from deceased donors in China: starting from 34 cases (donations per million population 0.03 PMP) in 2010 and rising to 6346 cases (4.6 PMP) in 2018.

In cooperation with the WHO and various stakeholders, such as the National Health Commission and the Red Cross Society of China, China has over the past decade built up a national organ donation system. This scientific-ethical system takes into account the country's cultural traditions and current socioeconomic conditions and has been well received by the public, at home and abroad. It is referred to as the "Chinese model" by the WHO [2, 3].

To further regulate the clinical practice of organ donation, China has created more than 110 organ procurement organizations (OPOs) in hospitals across the country as of February 2019. However, the structure and framework of the system are not the only basis for sustaining organ donation: the adequacy of skills and knowledge acquired by healthcare professionals in this area is also critical to effectively promoting robust progress. Organ donation and transplantation is a complex and rigorous clinical process, and key to success in each case are the professionalism and cooperation of the practitioners involved. The OPO plays an important bridging role in the process of organ donation and transplantation, and the donation coordinator is the critical link in facilitating the process from procurement of organs through to transplantation [4]. In addition, training and the dissemination of knowledge about organ donation among doctors and nurses in departments with potential organ donors is effective in improving timely identification of potential donors and increasing donation rates [5–7]. A few studies have indicated a lack of awareness among Chinese medical staff regarding brain death and organ donation, and education on organ donation represents a new challenge [8–11]. The need was urgent to develop an education pathway for organ donation in order to promote professionalization and to provide an academic profile for those involved in the field.

The education pathway for organ donation

The purpose of the organ donation education pathway is to disseminate knowledge among various groups with the aim of improving donation rates. The first level, implemented by the Red Cross Society of China, comprises a three-day national course and examination for coordinators with multidisciplinary backgrounds. As of December 2018, there were 2578 coordinators trained and certified at national level.

At the second level, the China Organ Transplant Development Foundation as a non-profit organization together with local hospitals, and with support from WHO, have been working in conjunction with international organizations such as the Donation and Transplant Institute in Barcelona (DTI) to develop a common training curriculum with the emphasis on training hospital professionals. The training is aimed at medical staff from the ICU, from the emergency department and from the OPO. Participants receive a 3- to 5-day course comprising theory seminars, case studies and simulation workshops for each step of the organ donation process [12]. The knowledge level of all participants is evaluated through a final test. Those who successfully pass the evaluation receive a certificate validating 5–10 ECTS (European Credit Transfer and Accumulation System), equalling 10–15 education credits in the Chinese CET system. As of May 2019, more than 1200 medical staff have been trained. This work laid the foundation of the cooperation network of the China-EU Knowledge Transfer and Leadership in Organ Donation project, steering the organ donation education pathway towards the higher education system in China, which constitutes termed the third level.

► **Table 1** KeTLOD I project partners.

City	Universities/Institutes	Hospital
Beijing, China	Capital Medical University	Beijing YouAn Hospital, Capital Medical University
Shanghai, China	Shanghai Jiao Tong University	Renji Hospital of School of Medicine Shanghai Jiaotong University
	Second Military Medical University	Shanghai Changhai Hospital
Wuhan, China	Wuhan University	Zhongnan Hospital of Wuhan University
Guangxi, China	Guangxi University of Chinese Medicine	No. 923 Hospital of Chinese People's Liberation Army
Kunming, China	Kunming University	The First People's Hospital of Kunming
Nanchang, China	Nanchang University	The Second Affiliated Hospital of Nanchang University
Shenzhen, China	Shenzhen XinGeRuiLa Culture Communication Co. Ltd.	–
	Intelligence Sharing for Life Science Research Institute	–
Barcelona, Spain	University of Barcelona	Hospital Clinic of Barcelona
	Donation and Transplantation Institute Foundation	–
Madrid, Spain	Dinamia S. COOP. MAD (DINAMIA)	–
Bologna, Italy	Universita of Bologna	–
Nice, France	University of Nice	–

Development of the China-EU Education Network for Organ Donation

The Knowledge Transfer and Leadership in Organ Donation (KeTLOD) project was set up under the guidance of the China-EU Joint Statement on Education Cooperation. KeTLOD [13] is aimed at further deepening cooperation between China and Europe on higher education, medicine and culture. Ten well-known universities and three research institutes (► **Table 1**) jointly initiated the KeTLOD project under support from the EU Erasmus+ program. The DTI Foundation together with the University of Barcelona are the main coordinators from Europe in the KeTLOD project. Based on the model of the Transplant Procurement Management (TPM) training courses that have been successfully implemented in Spain (► **page 8**), the curriculum has been developed and adjusted to local needs. It is conceived as a blended training program of 625 study hours (25 ECTS), jointly designed by the KeTLOD international group, to offer knowledge and experience for Chinese professionals in clinical approach, management and dissemination strategies for organ donation.

Outcome of the China-EU Education Network for Organ Donation

The KeTLOD project introduced organ donation into the Chinese higher education system as a formal subject for the first time. Over 2 years of implementation,

the project successfully fulfilled the training expectations with which it was tasked. Among its achievements were five significant “firsts”:

1. It created the first China-EU university network for higher education in organ donation and procurement.
2. It established for the first time seven China-EU clinical training bases for organ donation in China.
3. It created organ donation and procurement as an academic subject and brought in the first postgraduate course (625 hours).
4. The project has trained the first group of 21 Chinese international trainers and a group of 144 internationally recognized trainees in the field of organ donation and procurement. Among these participants 44 % are doctors, 20 % are organ donation coordinators from OPOs or the Red Cross Society, 20 % are medical students, and 14 % are nurses in departments with potential organ donors. Among those, 20 participants continued to the Masters degree of University of Barcelona after the KeTLOD curriculum.
5. The first textbook for organ donation to be used at university level, titled China-EU Organ Donation Management (bilingual version), based on the content of the KeTLOD curriculum, was officially published in May 2018 [14].

The China-EU KeTLOD curriculum: prospects and key lessons

The 1st version of the KeTLOD project was successfully completed in June 2018. The effectiveness of the training has been demonstrated by the continued increase of organ donation rates in the regions participating in the network. There is a common will in the “KeTLOD community” to continue the implementation of the KeTLOD curriculum in the Chinese universities with the support of the European universities. A 2nd version of KeTLOD (KeTLOD II) has been proposed. As part of this ongoing development, the First Affiliated Hospital of the University of Science and Technology of China, Hefei, Anhui, joined the KeTLOD project in May 2018 [15].

The establishment of organ procurement organizations (OPOs) and the training of healthcare professionals have been shown to be key elements in setting up a successful organ donation system. Through the cooperation with the DTI and the KeTLOD project, OPOs have been established at hospital level and an effective model for training of healthcare professionals has been initiated in China. As a result, organ donation rates have increased in recent years, reinforcing the importance of having well-trained, dedicated transplant coordinators in any donation and transplantation system.

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