

# The establishment and growth of China's umbilical cord blood banks

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The role of policies and networks in development of cord blood usage in China

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Umbilical cord blood banks offer patients and clinicians an alternative source for haematopoietic (blood) stem cells for the treatment of diseases and injuries. Hybrid public-private economic strategies, national planning and governmental licensing policies have fostered the development of a large network for umbilical cord blood banks in China. Dr Hung-Chieh Chang illustrates how these and other factors continue to influence the growth of cord blood banks in China.



## What questions & challenges are raised?

Transplants of haematopoietic stem cells have been used for over 50 years to treat diseases of the blood, such as leukaemia, as well as many additional diseases and injuries. These stem cells primarily reside in our bone marrow and are what make blood cells in our bodies. Haematopoietic stem cells have also been found in the blood of the umbilical cord, which has prompted the development of facilities called 'cord blood banks' to store umbilical cord blood (UCB) for future medical use. Cord blood banks have been established in China on an unprecedented scale, with facilities in Beijing and Guangdong storing half a million to 1.5 million units of UCB respectively. However, UCB only accounts for a small fraction of all haematopoietic stem cells used in China for clinical treatments; most stem cells still come from bone marrow donors. Key to the success of UCB banks is the demand for UCB in transplant centres. More use of UCB creates lower costs for the storage and use of each unit. In her recently reported study, Dr Hung-Chieh Chang from the National Taiwan University uses interviews, observations and archival research from her fieldwork in China to provide a perspective on the growth and policies of China's UCB banks. Dr Chang also discusses how societal views, policies and networks influence adoption of UCB treatments in China's clinics.

## What insight & direction does this give for research policies?

Dr Chang states that China's national plan and current policies have helped to establish the current use of UCB and the nationally licensed UCB banks. According to Dr Chang, UCB banks benefit from China's licensing system by officially accrediting specific facilities as state services and establishing those banks as the sole UCB collector for specific regions. Although they do not get state funding, UCB banks have grown their operations by functioning as hybrid public-private banks. There are still issues for Chinese UCB banks to overcome, but Dr Chang points out that the current policy and social political system has allowed China to rapidly develop an economically self-sufficient UCB banking system to meet local health and scientific needs. Dr Chang's case study of China's UCB banking system illustrates several aspects of how government policies and societal networks can impact UCB banking systems.

## What background and point are discussed?

China's UCB bank system is primarily composed of seven banks that obtained national operating licenses from China's Ministry of Health. Other non-approved UCB banks exist, however they call themselves 'stem cell banks' to avoid violation of regulations and China's national plan. Approved UCB banks do not receive financial support from the state and must generate their own revenue. Private banks charge families to store a child's UCB, which can be used later by the family if needed. Public banks rely on donations of UCB, which are sold to clinicians/patients. Almost all approved UCB banks in China use a hybrid system that provides both services. In a case study cord blood bank examined by Dr Chang, all donated and private UCB units are searchable for patient-donor matches, but if a private UCB unit is requested, families have the choice to keep, donate or sell it. Approved UCB banks in China operate in different regions, only being able to accept donations from hospitals in their designated region. However, banks are permitted to distribute UCB units across regions to build their network of consumers. Dr Chang's field research revealed issues that hinder more widespread use of UCB and efforts UCB banks are making to improve their networks. China is currently in need of a UCB registry like it has for bone marrow. The lack of a single platform makes finding UCB units for patients difficult. Increasing doctor's awareness and confidence in UCB is an on-going challenge. UCB banks are attempting to inform doctors of the many benefits UCB treatments offer, such as: patient-donor matches are often easier to find; complications such as graft vs. host disease are less likely; and combining UCB with bone marrow stem cell treatments can improve results when patient-donor matches are not ideal. Summits and conferences organised by UCB banks have invited prominent speakers to give talks on UCB transplants and provide oncologists with opportunities to network with UCB banks. A recent rise in distrust of doctors across China is another current problem. Many patients are frustrated with the financial kickbacks doctors receive from pharmaceutical companies, particularly when out-of-pocket costs for treatments can be substantial. There is also the need to inform the public and build public confidence in UCB and other stem cell treatments. Some people in the public claim that UCB banking and treatments are fraudulent practices. To counter this, efforts have been made to report positive UCB treatment outcomes on TV, offer public lectures and produce informative material for internet sites and social media platforms.