

## Supplementary Appendix

The complete list of the trial investigators, and their full names and academic degrees are as follows:

Ren Liao, M.D., Jin Liu, M.D., Wěi Zhang, M.D., Hong Zheng, M.D., Zhaoqiong Zhu, M.D., Haorui Sun, M.D., Zhangsheng Yu, M.D., Huiqun Jia, M.D., Yanyuan Sun, M.D., Wenli Yu, M.D., Zhen Luo, M.M., Yanqing Chen, M.D., Kexian Zhang, M.D., Lulu Ma, M.D., Hui Yang, M.D., Fang Yuan, M.D., Hongwei Xu, M.M., Jianwen Zhang, M.D., Lei Zhang, M.M., Dexing Liu, M.M., Han Huang, M.D., Hongwei Liu, M.D., Min Yan, M.D., Hongwei Zhang, M.M., Muhuo Ji, M.D., Zhiping Song, M.D., Changshun Huang, M.D., Yuan Yan, M.M., Hao Hu, M.D., Leiming Xia, M.D., Su Min, M.D., Guohai Xu, M.D., Baoguo Wang, M.D., Kai Kang, M.D., Qian Zhu, M.D., Dongmei Li, M.D., Jinfeng Yang, M.D., Hui Li, M.D., Kaizhi Lu, M.D., Xinli Ni, M.D., Yongtao Gao, M.D., Liyan Chu, M.D., Kai Li, M.D., Wenqi Huang, M.D., Jiang Zhu.

The trial investigators' affiliations were as follows: the Department of Anesthesiology and Translational Neuroscience Center, State Key Laboratory of Biotherapy, West China Hospital of Sichuan University (R.Liao, J.Liu, Z.Luo, Hw.Xu), Department of Anesthesiology of the First Affiliated Hospital of Zhengzhou University (W. Zhang, Jw. Zhang), Department of Anesthesiology of the First Affiliated Hospital of Xinjiang Medical University (H. Zheng, L. Zhang), and Department of Anesthesiology of the Affiliated Hospital of Zunyi Medical College (Zq. Zhu, Dx. Liu), the Department of Anesthesiology of Beijing Friendship Hospital of Capital Medical University (Hr. Sun, Q. Zhu), the School of Life Science and Biotechnology, Shanghai Jiao Tong University (Zs. Yu), the Department of Anesthesiology of the Fourth Hospital of Hebei Medical University (Hq. Jia), Department of Anesthesiology of the Xijing Hospital of the Fourth Military Medical University (Yy. Sun), the Department of Anesthesiology of Tianjin First Center Hospital (Wl. Yu), the Department of Anesthesiology of Fujian Provincial Hospital (Yq. Chen), Department of Anesthesiology of Sichuan Cancer Hospital and Institute (Kx. Zhang, Hw. Zhang), the Department of Anesthesiology of Peking Union Medical College Hospital (Ll. Ma), Department of Anesthesiology of Tongji Hospital of Tongjin Medical College, Huazhong University of Science & Technology (H. Yang), and Department of Anesthesiology of General Hospital Affiliated to Tianjin Medical University (F. Yuan, Hw. Liu), the Department of Anesthesiology of the Second Affiliated Hospital of Zhejiang University School of Medicine (M. Yan), the Department of Anesthesiology of Nanjing General Hospital (Mh. Ji), Department of Anesthesiology, First Affiliated Hospital of Nanchang University (Zp. Song), Department of Anesthesiology, Ningbo First Hospital (Cs. Huang), Department of Anesthesiology of the First People's Hospital of Neijiang (Y. Yan), Department of Anesthesiology of Xiangya Hospital, Central South University (H. Hu), Department of Anesthesiology of Union Hospital of Tongji Medical College, Huazhong University of Science and Technology (Lm. Xia), Department of Anesthesiology of the First Affiliated Hospital of Chongqing Medical University (S. Min), and Department of Anesthesiology of the Second Affiliated Hospital of Nanchang University (Gh. Xu), Department of Anesthesiology, Sanbo Brain Hospital, Capital Medical University (Bg. Wang), Department of Anesthesiology of Beijing Obstetrics and Gynecology Hospital, Capital Medical University (K. Kang), Department of Anesthesiology of the Second Affiliated Hospital

1 of Harbin Medical University (DM. Li), Department of Anesthesiology, Hunan Cancer Hospital (Jf.  
2 Yang), Department of Anesthesiology of the Second Xiangya Hospital of Central South University (H.  
3 Li), and Department of Anesthesiology of Chongqing Southwest Hospital (Kz. Lu), Department of  
4 Anesthesiology of the General Hospital of Ningxia Medical University (Xl. Ni), Department of  
5 Anesthesiology of West China Second University Hospital of Sichuan University (H. Huang),  
6 Department of Anesthesiology of the Affiliated Hospital of Nantong University (Yt. Gao), the  
7 Department of Anesthesiology of Beijing Tongren Hospital, Capital Medical University (Ly. Chu),  
8 Department of Anesthesiology of the China-Japan Friendship Hospital of Jilin University (K. Li),  
9 Department of Anesthesiology of the First Affiliated Hospital, Sun Yat-sen University (Wq. Huang),  
10 and Department of Anesthesiology of the Second Affiliated Hospital, Sun Zhou University (J. Zhu).

11 Thirty-five hospitals participated in this prospective randomized clinical trial to investigate the efficacy  
12 of an individualized strategy for transfusion in elective non-cardiac surgeries. All the participating  
13 hospitals contributed their best work to this study, 12 hospitals provided >30 eligible participants that  
14 were listed in the manuscript, and the remaining 23 hospitals contributed a total of 327 eligible  
15 participants.

16

Participating hospital	Eligible subjects (n)
West China Hospital of Sichuan University	183
The First Affiliated Hospital of Zhengzhou University	120
The First Affiliated Hospital of Xinjiang Medical University	120
The Affiliated Hospital of Zunyi Medical College	113
The Fourth Hospital of Hebei Medical University	53
Xijing Hospital of the Fourth Military Medical University	46
Tianjin First Center Hospital	41
Fujian Provincial Hospital	36
Sichuan Cancer Hospital & Institute	34
Peking Union Medical College Hospital	32
Tongji Hospital of Tongji Medical College	31
General Hospital Affiliated to Tianjin Medical University	30
The Second Affiliated Hospital of Zhejiang University	29
Nanjing General Hospital	28
The First Affiliated Hospital of Nanchang University	25
Ningbo First Hospital	23

The First People's Hospital of Neijiang	22
Xiangya Hospital, Central South University	22
Union Hospital of Tongji Medical College	18
The First Affiliated Hospital of Chongqing Medical University	17
The Second Affiliated Hospital of Nanchang University	16
Sanbo Brain Hospital, Capital Medical University	16
Beijing Obstetrics and Gynecology Hospital, Capital Medical University	16
Beijing Friendship Hospital of Capital Medical University	15
The Second Affiliated Hospital of Harbin Medical University	15
Hunan Cancer Hospital	13
The Second Xiangya Hospital of Central South University	11
Chongqing Southwest Hospital	9
Ningxia Medical University	6
West China Second University Hospital of Sichuan University	6
Affiliated Hospital of Nantong University	5
Beijing Tongren Hospital, Capital Medical University	5
China-Japan Friendship Hospital of Jilin University	5
The First Affiliated Hospital, Sun Yat-sen University	3
The Second Affiliated Hospital, SuZhou University	2

1 **Supplementary Table 1: Serious in-hospital complications.\***

Systems	Definitions of serious in-hospital complications
Cardiac events	<ul style="list-style-type: none"> <li>• Cardiac arrest: the abrupt loss of heart function.</li> <li>• Myocardial infarction: death of the cells of an area of myocardium as a result of oxygen deprivation, which in turn is caused by obstruction of the blood supply.</li> <li>• Definite diagnosis of angina pectoris.</li> <li>• Definite diagnosis of arrhythmia.</li> <li>• Heart block needing temporary or permanent pacemaker.</li> <li>• Definite diagnosis of heart failure.</li> <li>• Acute coronary syndrome: includes unstable angina, non-ST</li> </ul>

	segment elevation myocardial infarction, and ST segment elevation myocardial infarction.
Central nervous system events	<ul style="list-style-type: none"> <li>• Cardiac infection needing antibiotics or other treatment.</li> <li>• Stroke: sudden impairment of brain function resulting either from a substantial reduction in blood flow to some part of the brain or from intracranial bleeding.</li> <li>• Definite diagnosis of carotid or intracranial thrombosis.</li> <li>• Definite diagnosis of intracranial hemorrhage.</li> <li>• Intracranial infection needing antibiotics or other treatment.</li> </ul>
Pulmonary events	<ul style="list-style-type: none"> <li>• Definite diagnosis of atelectasis needing treatment.</li> <li>• Tension pneumothorax, hemothorax, or hemopneumothorax needing thoracic close drainage.</li> <li>• Pulmonary edema needing treatment.</li> <li>• Bronchopleural fistula needing surgical intervention.</li> <li>• Respiratory failure needing mechanical ventilation.</li> <li>• Pulmonary embolism with definite diagnosis.</li> <li>• Pulmonary infection needing antibiotics or other treatment.</li> </ul>
Digestive system events	<ul style="list-style-type: none"> <li>• Anastomotic fistula.</li> <li>• Bile leakage, or biloma needing surgical intervention.</li> <li>• Definite diagnosis of hepatic dysfunction or failure.</li> <li>• Diarrhea, gastrointestinal infection, or intra-abdominal infection needing treatment with antibiotics.</li> </ul>
Urinary/reproductive system events	<ul style="list-style-type: none"> <li>• Urinary tract obstruction needing surgical intervention.</li> <li>• Acute renal insufficiency needing dialysis.</li> <li>• Urinary/reproductive infection needing treatment with antibiotics.</li> </ul>
Postoperative bleeding	<ul style="list-style-type: none"> <li>• Postoperative bleeding needing re-operation.</li> </ul>
Other complications	<ul style="list-style-type: none"> <li>• Definite diagnosis of disseminated intravascular coagulation, disruption of wound needing surgical intervention.</li> <li>• Infection of incisional wound needing antibiotics or other treatment.</li> <li>• Definite diagnosis of Systemic Inflammatory Response Syndrome or sepsis.</li> </ul>

1 \*Diagnoses of serious in-hospital complications were made by attending physicians and recorded  
2 in the medical record.  
3