# SUPPLEMENTAL MATERIAL

**Appendix S1 Group information: *Hospitals for Phase One (Investigator)*:**

Shanxi Cardiovascular Hospital (Bao Li); Nanjing Drum Tower Hospital, The Affiliated Hospital of Nanjing University Medical School (Biao Xu, Guangshu Han); Hainan General Hospital (Bin Li); The Second Hospital of Jilin University (Bin Liu); The 2nd Affiliated Hospital of Harbin Medical University (Bo Yu); The Ninth Hospital Affiliated to Shanghai Jiaotong University School of Medicine (Changqian Wang); Henan Provincial People's Hospital (Chuanyu Gao); Shanxi Provincial People's Hospital (Chunlin Lai); Xinqiao Hospital, Third Military Medical University (Cui Bin, Lan Huang); China Meitan General Hospital (Di Wu); The 309th Hospital of Chinese People's Liberation Army (Fakuan Tang, Jun Xiao); Zhongda Hospital, Southeast University (Genshan Ma); The First Affiliated Hospital of Liaoning Medical University (Guizhou Tao); Xinjiang Uygur Autonomous Region People’s Hospital (Guoqing Li); Sir Run Run Shaw Hospital, College of Medicine, Zhejiang University (Guosheng Fu); Beijing Friendship Hospital, Capital Medical University (Hongwei Li); The First Affiliated Hospital of Bengbu Medical College (Honhju Wang); General Hospital of TISCO (Huifeng Wang); Dongguan People's Hospital (Jianfeng Ye); Panyu Hospital of Chinese Medicine (Jianhao Li); Peking University First Hospital (Jie Jiang); Sun Yat-sen Memorial Hospital, Sun Yat-sen University (Jingfeng Wang); Guangdong General Hospital (Jiyan Chen); Hospital of Xinjiang Production & Construction Corps (Junming Liu); The Military General Hospital of Beijing PLA (Junxia Li); The First Affiliated Hospital of Guangxi Medical University (Lang Li); Tongren Hospital Affiliated to Shanghai Jiaotong University School of Medicine (Li Jiang); Binzou City Center Hospital (Lijun Meng); The First Affiliated Hospital of Zhengzhou University (Ling Li); Xijing

Hospital (Ling Tao); The Affiliated Hospital of Guizhou Medical University (Lirong Wu); First Affiliated Hospital of the People's Liberation Army General Hospital (Miao Tian); The Second People's Hospital of Yunnan Province (Minghua Han); Haikou People's Hospital (Moshui Chen); Gansu Provincial Hospital (Ping Xie); The First Affiliated Hospital of Henan University of Science and Technology (Pingshuan Dong); Chenzhou First People's Hospital (Qiaoqing Zhong); People’s Hospital of Qinghai Province (Rong Chang); Affiliated Hospital of Ningxia Medical University (Shaobin Jia); Beijing Anzhen Hospital, Capital Medical University (Shaoping Nie, Xiaohui Liu); North Jiangsu People's Hospital (Shenghu He); Shanghai Sixth People's Hospital (Shixin Ma); The First Hospital of Handan (Shuanli Xin); Huai'an First People's Hospital (Shuren Ma); The First Affiliated Hospital of Chongqing Medical University (Suxin Luo); Navy General Hospital (Tianchang Li); Zhejiang Provincial Hospital of TCM (Wei Mao); The Third Xiangya Hospital of Central South University (Weihong Jiang); Affiliated Hospital of Qinghai University (Weijun Liu); Teda International Cardiovascular Hospital (Wenhua Lin); The Second Hospital of Hebei Medical University (Xianghua Fu); Changhai Hospital of Shanghai (Xianxian Zhao); The Second Affiliated Hospital to Nanchang University (Xiaoshu Cheng); Hebei General Hospital (Xiaoyong Qi); Inner Mongolia People's Hospital (Xingsheng Zhao); The General Hospital of Shenyang Military Region (Yaling Han); The First Hospital of Jilin University (Yang Zheng); Tianjin Chest Hospital (Yin Liu); Hunan Provincial People's Hospital (Ying Guo); People's Hospital of Yuxi City (Yinglu Hao); The People's Hospital of Guangxi Zhuang Autonomous Region (Yingzhong Lin); The First Teaching Hospital of Xinjiang Medical University (Yitong Ma); Baogang Hospital (Yongdong Li); Tianjin Medical University General Hospital (Yuemin

Sun); The Second Affiliated Hospital of Zhengzhou University (Yulan Zhao); Nanfang Hospital of Southern Medical University (Yuqing Hou); The First Affiliated Hospital to Nanchang University (Zeqi Zheng); The First Affiliated Hospital of Lanzhou University (Zheng Zhang); The Third Hospital of Shijiazhuang (Zhenguo Ji); Wuxi People's Hospital (Zhenyu Yang); Jiangsu Province Hospital (Zhijian Yang); The Second Hospital of Shanxi Medical University (Zhiming Yang); The Affiliated Hospital of Xuzhou Medical College (Zhirong Wang); Southwest Hospital, Third Military Medical University (Zhiyuan Song); The First Affiliated Hospital of Xi'an Jiaotong University (Zuyi Yuan). *Hospitals for Phase Two (Investigator)*: Yangzhou First People's Hospital (Aihua Li); Hospital 463 of Chinese People's Liberation Army (Bosong Yang); The Central Hospital of Mianyang (Caidong Luo); Liaocheng People's Hospital (Chunyan Zhang); Yancheng Third People's Hospital (Chunyang Wu); The Second Xiangya Hospital of Central South University (Daoquan Peng); The Central Hospital of Panzhihua (Dawen Xu); The First Hospital of Qiqihaer City (Gang Xu); The Third the People's Hospital of Bengbu (Gengsheng Sang); The First Hospital of Jiamusi (Guixia Zhang); Zhoushan People's Hospital (Guoxiong Chen); Dalian Municipal Central Hospital (Hailong Lin); Renmin Hospital of Wuhan University (Hong Jiang); Ningxia People's Hospital (Hong Luan); The First People's Hospital of Yunnan Province (Kunhua Hospital) (Hong Zhang); The Central Hospital of Zhoukou (Hualing Liu); Anyang District Hospital (Hui Liu); Sichuan Provincial People's Hospital (Jianhong Tao); Mudanjiang Cardiovascular Disease Hospital (Jianwen Liu); Yichang Central Hospital (Jiawang Ding); Qilu Hospital of Shandong University (Jifu Li); Affiliated Hospital of Jiangsu University (Jinchuan Yan); The First People's Hospital of Nanning City (Jinru Wei); The First Affiliated

Hospital of Fujian Medical University (Jinzi Su); Chengdu Third People's Hospital (Jiong Tang); Yantaishan hospital (Juexin Fan); Qingdao Municipal Hospital (Jun Guan); Zhongshan Hospital Affiliated to Fudan University (Junbo Ge); Longyan First Hospital (Kaihong Chen); Affiliated Hospital of Guangdong Medical College (Keng Wu); Jiangxi Provincial People's Hospital (Lang Ji); Anhui Provincial Hospital (Likun Ma); Xiangtan City Central Hospital (Lilong Tang); The First Hospital of Haerbin City (Lin Wei); Central Hospital Affiliated to Shenyang Medical College (Man Zhang, Kaiming Chen); The Central Hospital of Wuhan (Manhua Chen); Hangzhou First People's Hospital (Ningfu Wang); The Central Hospital of Xuzhou (Peiying Zhang); The Second hospital of Dalian Medical University (Peng Qu); The First Affiliated Hospital of Liaoning University of Traditional Chinese Medicine (Ping Hou); Beijing Tsinghua Changgung Hospital (Ping Zhang); Guizhou Provincial People's Hospital (Qiang Wu); The First Affiliated Hospital of Xiamen University (Qiang Xie); Quanzhou First Hospital (Rong Lin); Wuzhou People's Hospital (Shaowu Ye); The Central Hospital of Jilin (Shuangbin Li); Xiangya Hospital Central South University (Tianlun Yang); Guangzhou Red Cross Hospital (Tongguo Wu); The First Affiliated Hospital of Guangzhou Medical College (Wei Wang); The First Affiliated Hospital of Wenzhou Medical University (Weijian Huang); The Second Affiliated Hospital of Soochow University (Weiting Xu); Wuhan Asia Heart Hospital (Xi Su); The First Affiliated Hospital of Soochow University (Xiangjun Yang); Affiliated Hospital of Yan'an University (Xiaochuan Ma); The First People's Hospital of Jining (Xiaofei Sun); The Central Hospital of Taiyuan (Xiaoping Chen); West China Hospital of Sichuan University (Xiaoping Chen); The Third Affiliated Hospital of Guangzhou Medical College (Ximing Chen); The First

Affiliated Hospital of Wannan Medical College (Xingsheng Tang); Tangdu Hospital of The Fourth Military Medical University (Xue Li); Shanghai East Hospital Affiliated to Tongji University (Xuebo Liu); Xiamen Cardiovascular Disease Hospital (Yan Wang); Zhongnan hospital of Wuhan University (Yanggan Wang); Fujian Provincial Hospital (Yansong Guo); The First Affiliated hospital of Dalian Medical University (Yanzong Yang); The First People's Hospital of Changde (Yi Huang); The First Affiliated Hospital of China Medical University (Yingxian Sun); The Fourth Affiliated Hospital of China Medical University (Yuanzhe Jin); Cangzhou Central Hospital (Zesheng Xu); The Central Hospital of Shaoyang (Zewei Ouyang); The People's Hospital of Liaoning Province (Zhanquan Li); The First Affiliated Hospital of Jiamusi University (Zhaofa He); Tangshan Gongren Hospital (Zheng Ji); Huaibei Miners General Hospital (Zhenqi Su); Linyi People's Hospital (Zhihong Ou).

**Data S1. Details on the process, benchmarks, requirements according to the CPC accreditation in China**

**The accreditation standard system of CPC in China**

**1. CPC Accreditation Standard:** China Chest Pain Center Accreditation Standard was released in 2013, including a standard version and a basic version for different hospitals. The standard version is suitable for the annual pPCI operation volume ≥200 cases and guarantee 7x24 hours for emergency PCI operation. The main target of the basic version is for those hospitals do not meet the requirements of the standard version, but the number of patients with acute myocardial infarction who are admitted/referred to ≥ 30 cases per year. The two sets of standards effectively cover the needs of the construction of CPCs in China. With the continuous accumulation of accreditation work experience, the actual situation of medical institutions in different regions of the country has been comprehensively revised. The standard has been revised several times during the period. The current standard version has been updated to the fifth edition, and the basic version has been updated to the second in version.

**2. Re-accreditation standard:** In order to continuously supervise and manage the certified units, the accreditation standard clearly requires that the CPC should be valid for 3 years after the first accreditation, and each CPC needs to be re-accredited before the expiration date. In January 2018, the China Chest Pain Center Accreditation Working Committee issued the “China Chest Pain Center Re-accreditation Standard (Standard Edition)”. With the approval of the first batch of primary CPCs at the end of 2016, the re-accreditation standards for basic CPCs will be drafted and announced by the end of 2019.

**3. Construction standards:** In order to further clarify the basic requirements for the construction of a CPC, assist the hospital to conduct self-assessment, and encourage more medical institutions to join the CPC construction team. In September 2016, the China Chest Pain Center Accreditation Work Committee drafted, revised and released "standards for the construction of chest pain centers”.

**4. Group standards:** In order to actively respond to the call for reforming of the national

standardization system, effectively promote the implementation of the policies of the National Health and Health Commission, and provide a solid foundation for the future CPC network in China, in August 2018, "China Cardiopulmonary Resuscitation and Cardiac Defibrillation Group Standards and China Chest Pain Center Construction and Evaluation Group Standards", which was prepared by the Rescue Association, the Chinese Nursing Association, the China Cardiovascular Health Alliance, and the Cardiovascular Health (Suzhou Industrial Park) Institute, was officially released and published on the national group standard information platform (standard numbers T/CADERM2001-2018 and T/CADERM2002-2018).

**Construction and review process of CPC in China**

Medical institutions at all levels actively responded to the policy requirements of the government, promote the construction of CPCs, and provide patients with higher quality medical services. They need to go through three stages before the accreditation, namely self-construction stage, the review phase and the continuous quality improvement phase.

**1. Self-construction:** The establishment of a CPC committee should led by the dean or the deputy medical dean of the medical institution, covering all the heads of medical and technical departments related to acute chest pain treatment, and also setting up medical directors, administrative directors, and liaisons. The person in charge of the position, conduct self-assessment, and in accordance with the requirements of the published accreditation standards (standard or basic version), by participating in relevant construction training sessions or watching the operation experience of the demonstration base, set up corresponding points in the main roads and major treatment points. The identification/guidance, optimize the relevant treatment process, unify the hospital clock, sign a joint treatment agreement with the pre-hospital emergency and network hospital, classify the whole staff treatment training in the hospital and the community, and faithfully record all except traumatic chest pain.

**2. Review phase:** Data on treatment of patients with acute chest pain and training related raw materials, and continuous optimization of the treatment process based on phased data analysis, when the CPCs actually running for at least 6 months (providing no less than 6 months of data

to assess the quality of operation) and self-assessment after basically meeting the requirements of the accreditation standard, at the specified time in the inter-node, the application for accreditation is issued to the China Chest Pain Center Accreditation Working Committee and the Chest Pain Center Headquarters. The whole year is divided into 4 batches of accreditation stages. After receiving the accreditation application from the medical institution, the headquarters first checks the accreditation qualification (including the consultation). Whether the quantity meets the requirements of the corresponding standard, whether the construction materials are complete, whether the case record meets the requirements of 6 months, whether the key treatment indicators are up to standard, etc.), the unit that passed the examination is handed over to the corresponding regional accreditation office for detailed review of each accreditation clause, and the unsatisfied clause proposed rectification opinions. After the unit was rectified, the office re-evaluated and recommended to enter the provincial pre-examination list of the provincial chest pain center. The provincial alliance assigned the provincial pre-inspection experts to the hospital for field visits, and conducted the operation of the chest pain center of the applicant unit. After the actual evaluation and suggestions for improvement, the provincial alliance comprehensively gives the results of the batch pre-inspection after passing the pre-inspection or rectification. Units that pass the pre-inspection of the provincial alliance will accept random and anonymous online materials and data reviews from three non-provincial national verification experts. Applicants who pass the expert online review will enter the unannounced visit and on-site verification stage. The unannounced visit is an expert commissioned by the headquarters to investigate the hospital's identification guidelines without the knowledge of the accreditation unit, and observe the applicant's actual acute chest pain patients or hire volunteers to simulate the patient's diagnosis and treatment. The diagnosis process and assessment of whether each link is standardized, and the corresponding score. The on-site inspection was carried out by three non-provincial experts and an office staff member to the applicant to evaluate the construction materials of the chest pain center, the authenticity of the data and the training effect of the whole staff, and to give a rating. All the online evaluations, unannounced visits and on-site inspections and scores of the applicants entering

the unannounced visit/site verification stage will be reported by the office at the plenary session of the China Chest Pain Center Accreditation Working Committee and will be voted by secret ballot on the overall situation of the members present. More than half of the votes will be passed, otherwise they will need to be revisited and/or checked again. The units that have passed the voting will elect to issue the bronze medals that have passed the accreditation.

**3. Continuous quality improvement:** Continuous improvement is the standard operation of the CPC, ensuring the essence of providing high-efficiency treatment. For certified CPCs, accreditation standards should continue to be optimized, enhanced training and extensive publicity and education, and accurate data management to further improve the efficiency and level of treatment for acute chest pain-related diseases. The China Chest Pain Center Accreditation Working Committee has separately formulated the "China Chest Pain Center Quality Control Indicators and Assessment Methods" (Standard Edition and Basic Edition, now updated to the second edition) and "China Chest Pain Center Re-accreditation Standards" (first edition) promote continuous improvement of accreditation through the unit. Specifically, the quality control center will monitor and evaluate the operation quality of each chest pain center every month. The regional reaccreditation office will conduct an overall assessment of the operation of the chest pain center within three years after accreditation.

**Quality control system of China CPC**

*"Without scale, there is no benefit, no quality, no life"*. In keeping with this aim, while promoting the rapid growth of the number of CPCs, the Accreditation Work Committee and the Chest Pain Center Headquarter continue to promote and improve quality control methods.

**1. Establish a data platform for chest pain center data and provide it to all chest pain centers for free.** The patient type collected by the data reporting platform covers all patients with acute chest pain except traumatic chest pain. The collected fields focus on the treatment time node and key medical behavior record, providing data support for accreditation, quality control and reaccreditation assessment. Current data reporting platform In the process of upgrading, it is mainly updated from two angles. The first is the classification of data fields.

The existing fields are summarized into the basic information of the patient, the basic information of the disease and the information of the specialist diagnosis and treatment, for the future and the center of atrial fibrillation and heart failure. The integration of data platforms such as rehabilitation centers has paved the way for the formation of a big data center for cardiovascular diseases, which has become an important support for government decision-making and the development of the industry. Second, the positioning of database roles, providing basic library of accreditation quality control and scientific research to meet different positioning. The work needs of the medical institutions have made the chest pain center database truly an assistant to departmental patient management and to promote medical quality improvement.

**2. Promote the development of data collection information, improve reporting efficiency and data quality.** Develop existing real-time filing and data uploading applets, apps or automatic collection technology with existing Internet technologies, to reduce the workload of data manual reporting, reduce error rate, improve data quality and report efficiency, and provide reliable quality control.

**3. Establish a data quality control platform for the chest pain center to provide a grasp for the provincial/local alliance to promote quality control.** The establishment of the quality control platform will summarize and analyze the data reported by the CPCs of each unit, and present them in a visualized form to express the continuous quality improvement of each CPC. The index ranking has become an important starting point for the provincial/municipal chest pain center alliance to carry out quality control work.

**4. Establish a normalized quality control system to promote the continuous improvement of the quality of the chest pain center.** The normalized quality control system includes: issuing quality control indicators and assessment methods for chest pain centers, developing quality control platforms, formulating quality control reports for health care committees, provincial/municipal chest pain center alliances, hospitals, etc.. The system is commended and criticized at the annual Chest Pain Center Quality Control Conference. Thereby establishing a four-level quality control system for hospital internal quality control, municipal-level alliance

quality control, provincial-level alliance quality control and national quality control. In the future, with the support of the National Health and Health Commission, the quality control effect of the chest pain center can provide data support for the grade hospitals or key disciplines, and can also provide reference for the cost settlement of the medical insurance bureaus at all levels.

**Table S1. Baseline Characteristics of the Study Population in Sensitivity Analyses.**

| Variables | Unmatched | | | Propensity score-matched | | |
|---|---|---|---|---|---|---|
| | no accreditation | after accreditation | p value | no accreditation | after accreditation | p value |
| n | 36911 | 8858 | | 8719 | 8719 | |
| Age, years | 62.66 (12.66) | 62.48 (12.44) | 0.211 | 62.36 (12.50) | 62.46 (12.45) | 0.597 |
| Sex: Female | 8862 (24.0) | 2100 (23.7) | 0.559 | 2015 (23.1) | 2069 (23.7) | 0.343 |
| Hospital location | | | <0.001 | | | 0.305 |
| First-line municipality | 5715 (15.5) | 0 (0.0) | | | | |
| Provincial capital | 15297 (41.4) | 2798 (31.6) | | 5985 (68.6) | 5921 (67.9) | |
| Prefecture-level city | 15899 (43.1) | 6060 (68.4) | | 2734 (31.4) | 2798 (32.1) | |
| Hospital: First medical facility | 19223 (52.1) | 4844 (54.7) | <0.001 | 4790 (54.9) | 4745 (54.4) | 0.503 |
| Department: Emergency/Cath lab | 24039 (65.1) | 6797 (76.7) | <0.001 | 6507 (74.6) | 6660 (76.4) | 0.007 |
| **Type of MI** | | | | | | |
| STEMI | 26620 (72.1) | 6303 (71.2) | 0.072 | 6104 (70.0) | 6207 (71.2) | 0.090 |
| **Killip class** | | | <0.001 | | | 0.975 |
| Class I | 25828 (70.0) | 6584 (74.3) | | 6444 (73.9) | 6457 (74.1) | |
| Class II-III | 9394 (25.5) | 1970 (22.2) | | 1971 (22.6) | 1959 (22.5) | |
| Class IV | 1689 (4.6) | 304 (3.4) | | 304 (3.5) | 303 (3.5) | |
| **Comorbidity** | | | | | | |
| Current smoking | 16183 (43.8) | 4193 (47.3) | <0.001 | 4099 (47.0) | 4103 (47.1) | 0.964 |
| Hypertension | 19013 (51.5) | 4495 (50.7) | 0.715 | 4461 (51.2) | 4422 (50.7) | 0.565 |
| Dyslipidemia | 2922 (7.9) | 427 (4.8) | 0.200 | 463 (5.3) | 426 (4.9) | 0.215 |
| Diabetes mellitus | 7999 (21.7) | 1936 (21.9) | <0.001 | 1880 (21.6) | 1903 (21.8) | 0.686 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Heart failure history | 762 (2.1) | 85 (1.0) | <0.001 | 103 (1.2) | 85 (1.0) | 0.213 |
| Renal failure history | 701 (1.9) | 93 (1.0) | <0.001 | 101 (1.2) | 92 (1.1) | 0.563 |
| Previous MI | 2650 (7.2) | 512 (5.8) | <0.001 | 507 (5.8) | 505 (5.8) | 0.974 |
| Previous PCI or CABG | 2298 (6.2) | 584 (6.6) | 0.210 | 576 (6.6) | 567 (6.5) | 0.807 |
| **Pre-admission of medication** | | | | | | |
| Aspirin | 8214 (22.3) | 1467 (16.6) | <0.001 | 1466 (16.8) | 1455 (16.7) | 0.839 |
| $P2Y_{12}$ receptor inhibitors | 6176 (16.7) | 1105 (12.5) | <0.001 | 1100 (12.6) | 1099 (12.6) | 1.000 |
| Statins | 5737 (15.5) | 1008 (11.4) | <0.001 | 1028 (11.8) | 1000 (11.5) | 0.524 |

Data are expressed as means ± SD, or n (%). Abbreviations: CABG, coronary artery bypass graft; Cath, Catheter; MI, myocardial infarction; NSTEMI, non-ST elevation myocardial infarction; PCI, percutaneous coronary intervention; STEMI, ST elevation myocardial infarction.

**Table S2. In-hospital Outcomes* within 7 days after Hospitalization in Sensitivity Analyses.**

| Variables | Unmatched | | | Propensity score-matched | | |
|---|---|---|---|---|---|---|
| | no accreditation | after accreditation | p value | no accreditation | after accreditation | p value |
| n | 36911 | 8858 | | 8719 | 8719 | |
| MACE, n(%) | 4376 (11.9) | 542 (6.1) | <0.001 | 810 (9.3) | 534 (6.1) | <0.001 |
| All-cause death, n(%) | 621 (1.7) | 107 (1.2) | 0.002 | 121 (1.4) | 106 (1.2) | 0.350 |
| Cardiac death, n(%) | 591 (1.6) | 104 (1.2) | 0.004 | 114 (1.3) | 103 (1.2) | 0.495 |
| Re-infarction, n(%) | 88 (0.2) | 15 (0.2) | 0.268 | 24 (0.3) | 15 (0.2) | 0.200 |
| Stent thrombosis, n(%) | 50 (0.1) | 8 (0.1) | 0.365 | 7 (0.1) | 8 (0.1) | 1.000 |
| Stroke, n(%) | 112 (0.3) | 9 (0.1) | 0.001 | 26 (0.3) | 9 (0.1) | 0.007 |
| Heart failure, n(%) | 3907 (10.6) | 440 (5.0) | <0.001 | 696 (8.0) | 433 (5.0) | <0.001 |

Data are expressed as n (%). Abbreviations: MACE, major adverse cardiovascular events.

*Patients may have had more than 1 outcome in each category but counted only once for overall events.

**Table S3. Independent Predictors of MACE in Propensity Score-matched Population in Sensitivity Analyses.**

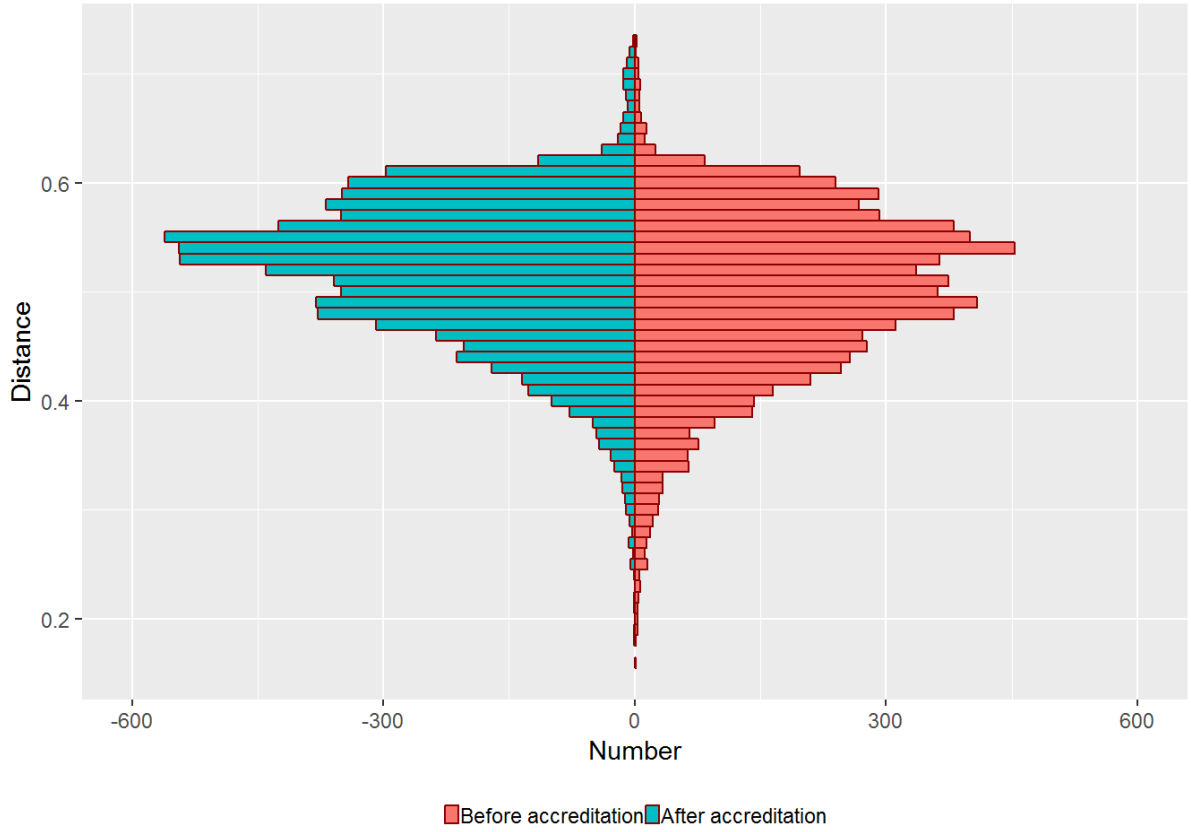
| Variables | Unmatched | | Propensity score-matched | |
|---|---|---|---|---|
| | Before accreditation | After accreditation | Before accreditation | After accreditation |
| MACE | | | | |
| Crude HR (95% CI) | 1.00 | 0.50(0.46,0.55) | 1.00 | 0.65(0.58,0.73) |
| *p* value | | <0.001 | | <0.001 |
| Age and sex adjusted HR (95% CI) | 1.00 | 0.50(0.46,0.55) | 1.00 | 0.64(0.58,0.72) |
| *p* value | | <0.001 | | <0.001 |
| Multivariate adjusted HR | 1.00 | 0.57(0.52,0.62) | 1.00 | 0.64(0.58,0.72) |
| p value | | <0.001 | | <0.001 |
| All-cause death | | | | |
| Crude HR (95% CI) | 1.00 | 0.72(0.59,0.89) | 1.00 | 0.88(0.68,1.15) |
| *p* value | | 0.002 | | 0.350 |
| Age and sex adjusted HR (95% CI) | 1.00 | 0.73(0.60,0.90) | 1.00 | 0.87(0.67,1.14) |
| *p* value | | 0.003 | | 0.314 |
| Multivariate adjusted HR (95% CI)* | 1.00 | 0.73(0.59,0.90) | 1.00 | 0.87(0.67,1.13) |
| *p* value | | 0.003 | | 0.289 |

Abbreviations: CABG, coronary artery bypass graft; CI, confidence interval; HR, hazard ratio; MACE, major adverse cardiovascular events; MI, myocardial infarction; PCI, percutaneous coronary intervention.

* Adjusted for age, sex, the level of the city where the hospital is located, first medical contact site or not, comorbidities including smoking status, diabetes mellitus, hypertension, dyslipidemia, diabetes mellitus, heart failure history, renal failure history, previous MI, previous PCI or CABG, type of MI, Killip classes, pre-admission use of aspirin, pre-admission use of P2Y12 receptor inhibitors, and pre-admission use of statins.

**Figure S1. Mirrored Histogram before (A) and after (B) propensity score matching.** X axis is the number of patients in each group. Y axis is the propensity score. The red bar presents the before accreditation group and the blue bar for the after accreditation group.

**A**



**B**

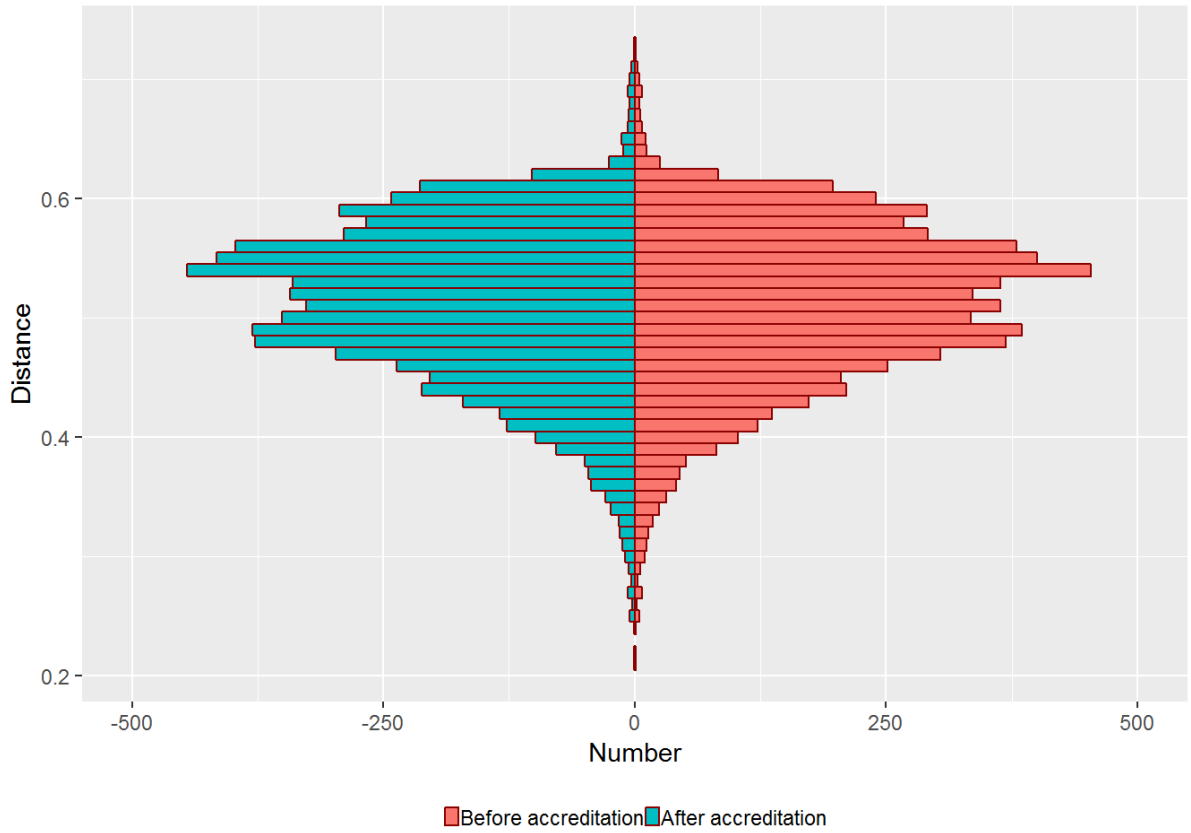

Distance
0.6
0.4
0.2
-500
-250
0
250
500
Number
Before accreditation
After accreditation

**Figure S2. Subgroup analyses for MACE in the propensity score–matched population.** Abbreviations: CABG, coronary artery bypass graft; Cath, Catheter; CI, confidence interval; MACE, major adverse cardiovascular events; MI, myocardial infarction; NSTEMI, non-ST elevation myocardial infarction; PCI, percutaneous coronary intervention; STEMI, ST elevation myocardial infarction.

| Subgroups | No. of Patients | Before | After | Hazard Ratio (95%CI) | p value | p for interaction |
|---|---|---|---|---|---|---|
| **Overall** | **13400** | **539 (8.0)** | **448 (6.7)** | **0.78(0.68,0.91)** | **0.001** | |
| **Age** | | | | | | |
| <65 year | 7457 | 177 (4.8) | 152 (4.1) | 0.80(0.61,1.04) | 0.980 | 0.780 |
| ≥65 year | 5943 | 362 (12.2) | 296 (10.0) | 0.79(0.67,0.95) | 0.036 | |
| **Sex** | | | | | | |
| Male | 10270 | 342 (6.7) | 298 (5.8) | 0.80(0.66,0.95) | 0.069 | 0.780 |
| Female | 3130 | 197 (12.6) | 150 (9.6) | 0.76(0.59,0.97) | 0.250 | |
| **City** | | | | | | |
| Prefecture-level city | 4859 | 274 (11.1) | 179 (7.5) | 0.69(0.55,0.86) | 0.037 | 0.200 |
| Provincial capital | 8541 | 265 (6.2) | 269 (6.3) | 0.85(0.70,1.03) | 0.150 | |
| **First medical contact site** | | | | | | |
| No | 6667 | 276 (8.3) | 227 (6.8) | 0.74(0.60,0.91) | 0.100 | 0.110 |
| Yes | 6733 | 263 (7.8) | 221 (6.6) | 0.84(0.68,1.03) | 0.220 | |
| **Department arrived** | | | | | | |
| Outpatient, others | 3380 | 141 (8.4) | 101 (5.9) | 0.79(0.57,1.09) | 0.160 | 0.850 |
| Emergency, cath lab | 10020 | 398 (7.9) | 347 (6.9) | 0.80(0.67,0.94) | 0.110 | |
| **Type of MI** | | | | | | |
| STEMI | 3745 | 166 (8.8) | 160 (8.6) | 0.70(0.58,0.84) | 0.140 | 0.002 |
| NSTEMI | 9655 | 373 (7.7) | 288 (6.0) | 0.97(0.75,1.26) | 0.064 | |
| **Killip class I** | | | | | | |
| No | 9714 | 239 (4.9) | 194 (4.0) | 0.74(0.60,0.92) | 0.500 | 0.850 |
| Yes | 3686 | 300 (16.1) | 254 (13.9) | 0.80(0.65,0.97) | 0.009 | |
| **Previous MI** | | | | | | |
| No | 12593 | 496 (7.9) | 402 (6.4) | 0.77(0.67,0.9) | 0.053 | 0.560 |
| Yes | 807 | 43 (10.9) | 46 (11.2) | 1.07(0.63,1.84) | 0.830 | |
| **Previous PCI or CABG** | | | | | | |
| No | 12597 | 509 (8.1) | 407 (6.5) | 0.76(0.65,0.88) | 0.018 | 0.049 |
| Yes | 803 | 30 (7.7) | 41 (10.0) | 1.16(0.68,2.00) | 0.390 | |

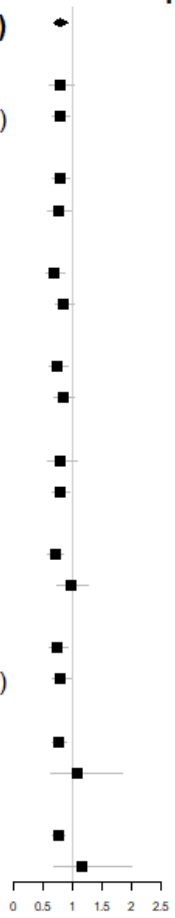


**Figure S3. Subgroup analyses for all-cause death in the propensity score–matched population.** Abbreviations: CABG, coronary artery bypass graft; Cath, Catheter; CI, confidence interval; MACE, major adverse cardiovascular events; MI, myocardial infarction; NSTEMI, non-ST elevation myocardial infarction; PCI, percutaneous coronary intervention; STEMI, ST elevation myocardial infarction.

| Subgroups | No. of Patients | Before | After | Hazard Ratio (95%CI) | p value | p for interaction |
|---|---|---|---|---|---|---|
| **Overall** | **13400** | **107 (1.6)** | **75 (1.1)** | **0.71(0.51,0.99)** | **0.042** | |
| **Age** | | | | | | |
| <65 year | 7457 | 21 (0.6) | 19 (0.5) | 0.99(0.49,2.00) | 0.980 | 0.560 |
| ≥65 year | 5943 | 86 (2.9) | 56 (1.9) | 0.67(0.46,0.97) | 0.036 | |
| **Sex** | | | | | | |
| Male | 10270 | 67 (1.3) | 49 (1.0) | 0.68(0.45,1.03) | 0.069 | 0.970 |
| Female | 3130 | 40 (2.6) | 26 (1.7) | 0.74(0.44,1.24) | 0.250 | |
| **City** | | | | | | |
| Prefecture-level city | 4859 | 47 (1.9) | 23 (1.0) | 0.55(0.31,0.96) | 0.037 | 0.510 |
| Provincial capital | 8541 | 60 (1.4) | 52 (1.2) | 0.74(0.49,1.12) | 0.150 | |
| **First medical contact site** | | | | | | |
| No | 6667 | 43 (1.3) | 28 (0.8) | 0.65(0.39,1.09) | 0.100 | 0.480 |
| Yes | 6733 | 64 (1.9) | 47 (1.4) | 0.77(0.50,1.17) | 0.220 | |
| **Department arrived** | | | | | | |
| Outpatient, others | 3380 | 16 (1.0) | 9 (0.5) | 0.48(0.17,1.33) | 0.160 | 0.440 |
| Emergency, cath lab | 10020 | 91 (1.8) | 66 (1.3) | 0.75(0.52,1.07) | 0.110 | |
| **Type of MI** | | | | | | |
| STEMI | 3745 | 34 (1.8) | 16 (0.9) | 0.75(0.51,1.10) | 0.140 | 0.650 |
| NSTEMI | 9655 | 73 (1.5) | 59 (1.2) | 0.56(0.31,1.03) | 0.064 | |
| **Killip class I** | | | | | | |
| No | 9714 | 36 (0.7) | 31 (0.6) | 0.84(0.49,1.42) | 0.500 | 0.880 |
| Yes | 3686 | 71 (3.8) | 44 (2.4) | 0.57(0.37,0.87) | 0.009 | |
| **Previous MI** | | | | | | |
| No | 12593 | 100 (1.6) | 70 (1.1) | 0.71(0.50,1.00) | 0.053 | 0.940 |
| Yes | 807 | 7 (1.8) | 5 (1.2) | 0.86(0.23,3.26) | 0.830 | |
| **Previous PCI or CABG** | | | | | | |
| No | 12597 | 105 (1.7) | 69 (1.1) | 0.66(0.47,0.93) | 0.018 | 0.170 |
| Yes | 803 | 2 (0.5) | 6 (1.5) | 2.30(0.35,15.03) | 0.390 | |

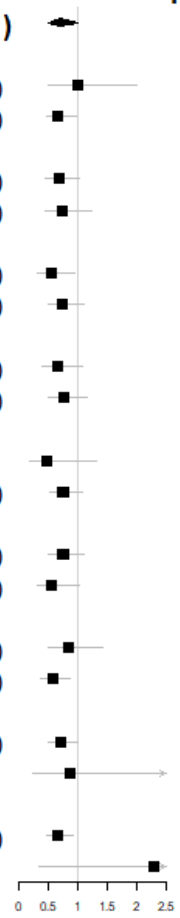


**Figure S4. Flow Diagram of Selection of the Study Population in Sensitivity Analyses.** Abbreviations: CCC-ACS: Improving Care for Cardiovascular Disease in China-Acute Coronary Syndrome; UAP: Unstable Angina Pectoris.

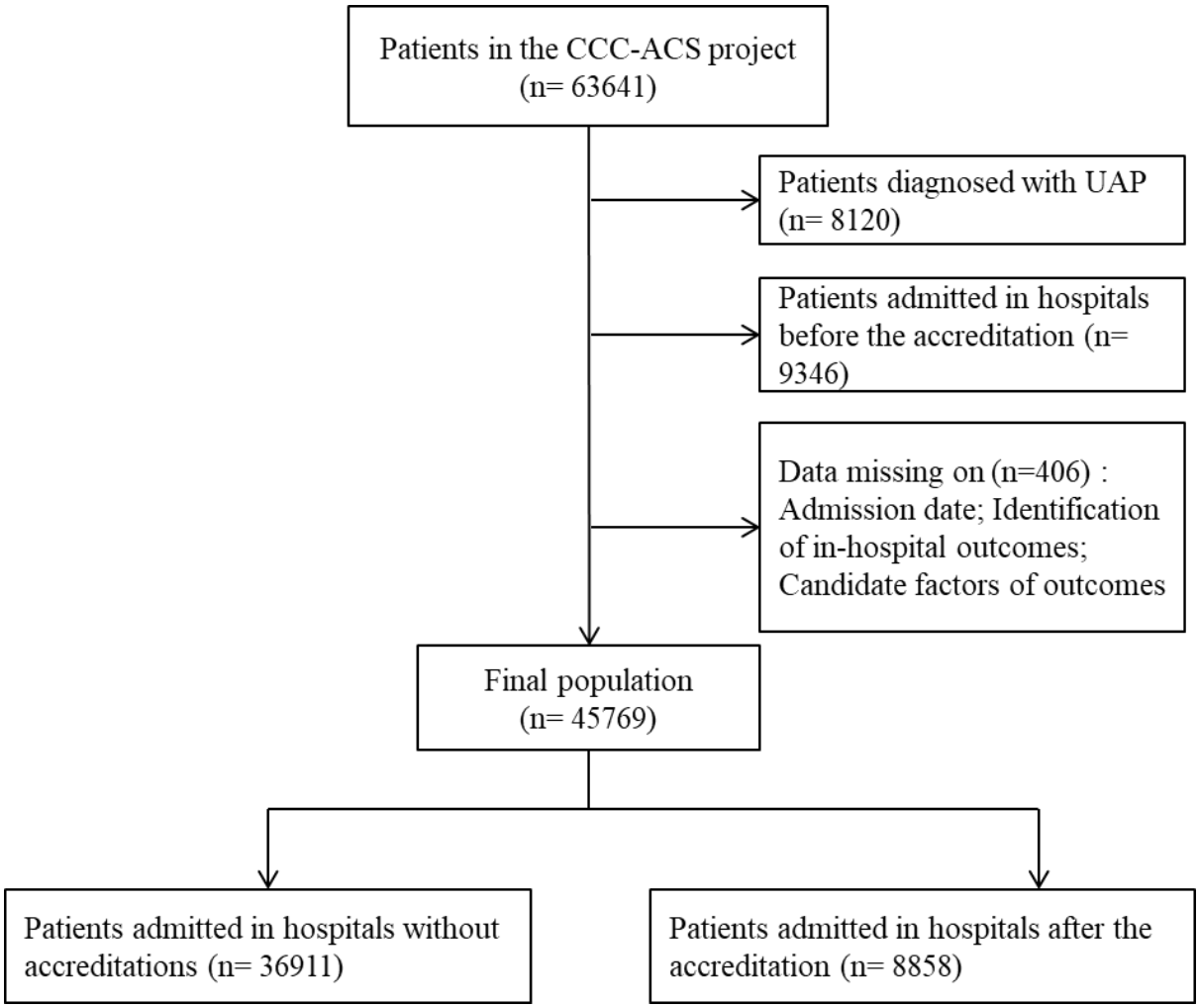
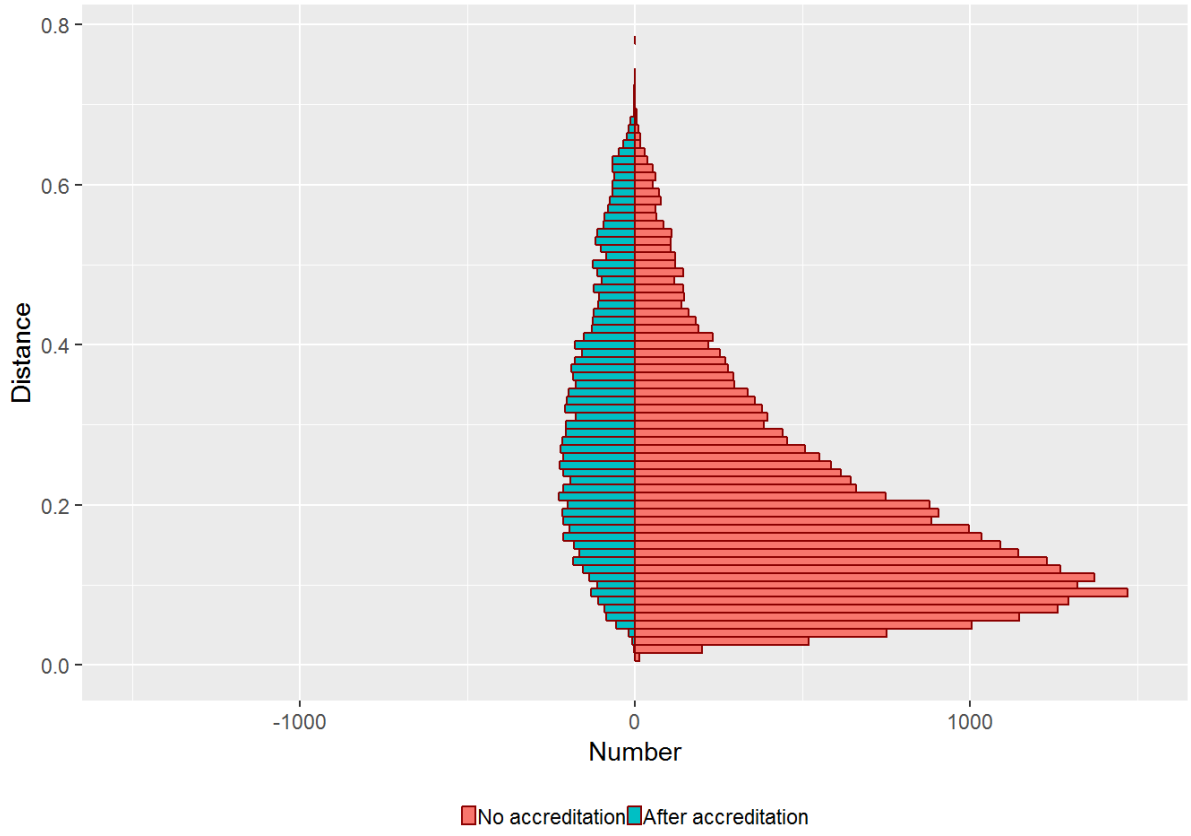


**Figure S5. Mirrored Histogram before (A) and after (B) propensity score matching in Sensitivity Analyses.** X axis is the number of patients in each group. Y axis is the propensity score. The red bar presents the no accreditation group and the blue bar for the after accreditation group.

**A**



**B**

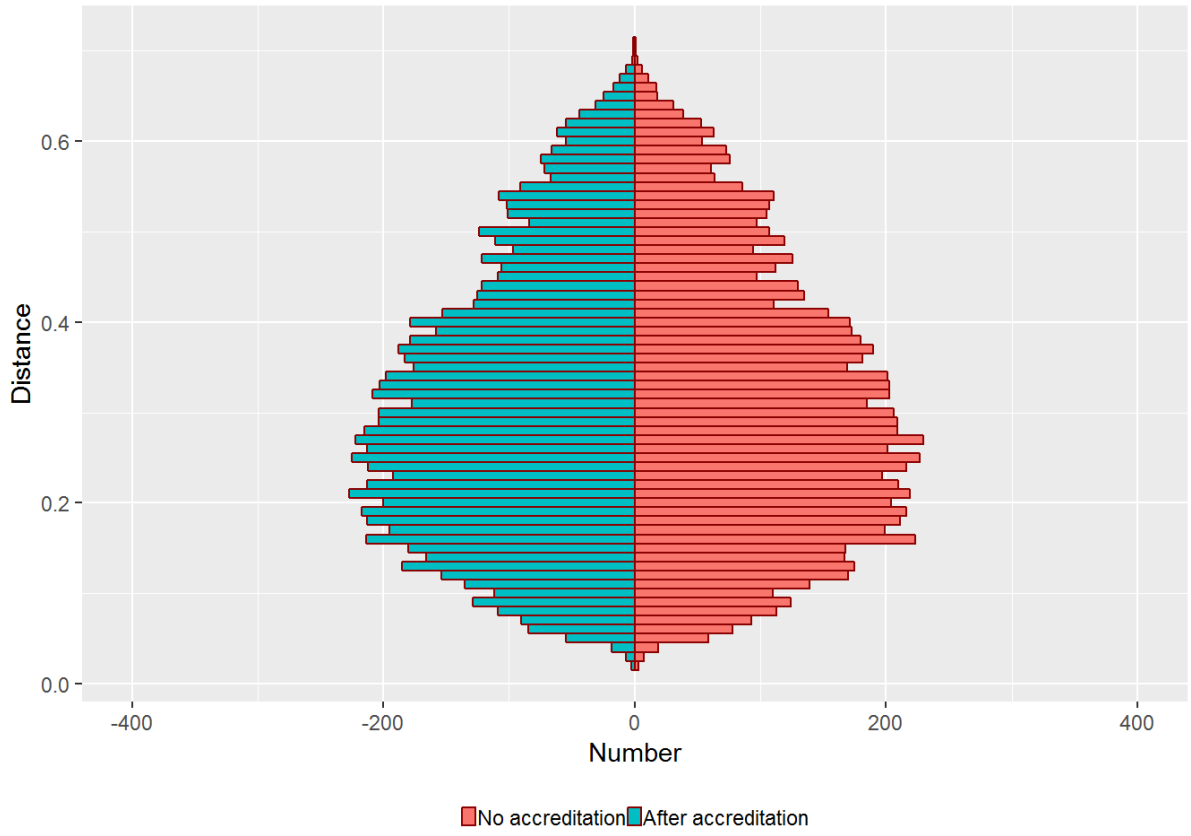

Distance
0.6
0.4
0.2
0.0
-400
-200
0
200
400
Number
No accreditation
After accreditation

**Figure S6. Cumulative Kaplan-Meier Curve Estimates of Outcomes within 7 days after Hospitalization in Sensitivity Analyses.** Abbreviations: CI, confidence interval; HR, hazard ratio; MACE, major adverse cardiovascular events. Panel A and B show data for MACE in the whole study population and the propensity score-matched population respectively. Panel C and D show data for all-cause death in the whole study population and the propensity score-matched population respectively.