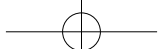




2014 OUTCOMES



Department of Cardiovascular Medicine
Cardiovascular Institute & Fu Wai Hospital
Chinese Academy of Medical Sciences & Peking
Union Medical College
National Center for Cardiovascular Diseases



用心守护健康

战事五年六月

海右C美林

2014
OUTCOMES





Table of *Contents*

02 Overview of the Department
of Cardiovascular Medicine

08 Cardiac Arrhythmia Center

12 Clinical Pharmacology Center & Key
Laboratory of Clinical Trial Research in
Cardiovascular Drugs, Ministry of Health

15 Emergency and Intensive
Care Center

17 Dyslipidemia and
Cardiovascular Disease Center

20 Thrombosis and Vascular
Medicine Center

24 Innovation and New Technology

05 Coronary Heart Disease Center

10 Hypertension Center

14 Pulmonary Vascular Disease Center

16 Endocrinology and Cardiovascular
Diseases Center

19 Heart Failure Care Center

21 Collaboration, Exchange, and Training

25 Awards



Shengshou Hu, MD, FACC

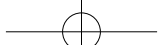
Academician of China National Engineering Research Institute
President of Fu Wai Hospital
Director of State Key Laboratory of Cardiovascular Disease
Director of National Center for Clinical Medicine Research
of Cardiovascular Disease

The President's Statement

Welcome to this 2014 edition of the annual outcomes book of the department of cardiovascular medicine of Fu Wai Hospital. As the initiator in China, we have released our performance report annually for a number of years. In doing so, our work is reviewed, monitored, and thus improved continuously.

China has experienced a remarkable epidemiological transition shifting from the infectious diseases to the infectious chronic diseases in the past decades. And the cardiovascular diseases have become the leading cause of the death and disability among the middle-aged and elderly both in urban and rural areas. We are facing a raging wave of spread of chronic diseases with the predicted large increase of morbidity and mortality form cardiovascular diseases. Only by making health care more predictive, preventive, personalized and participatory, can we minimize the impact of disease, promote and protect health and wellness. As the Clinical Medicine Department of National Center for Cardiovascular Disease (NCCD), we have to meet this new challenge by carrying out more research on this task and striving for more breakthroughs in this field in additiona to provide the excellence in healthcare to our patients..

'Quality and Creativity' are the philosophy of our team. We will always adhere to it and work hard in clinical treatment, medical education and technique innovation related to cardiovascular diseases.



Introduction

Founded for 58 years, Fu Wai Hospital has not only witnessed the development of prevention and treatment of cardiovascular diseases in China, inherited spirits of science, innovation and team-work, transmitted positive energy of Fu Wai Culture, and also served vast patients with premium and normative medical techniques and processes.

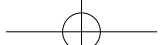
The department of Internal Medicine of Fu Wai hospital grips opportunities of the construction of National Center for Cardiovascular Diseases China and State Key Laboratory of Cardiovascular Diseases. The ten clinical centers and several state/ministry key laboratories absorb the latest academic results through pervasive communication and cooperation with academia domestically and overseas, innovating and developing constantly. The department of Internal Medicine strives to establish a platform for state cardiovascular diseases researches, elevate levels of researches effectively, and devote to providing better diagnosis and treatment services for patients with advanced knowledge and techniques.

Fu Wai Hospital is also named as State Clinical Research Center in 2013, which requires higher demands and missions for us. The annual report of Internal Medicine Of 2014 is to share with colleagues the efforts and achievements in clinic, researches, prevention and so on this year. In the past year the whole team of Internal Medicine provides high-quality medical services tirelessly and strives to promote discipline development of cardiovascularology and progress of medical services as always. This report makes a systematic review of the consistent efforts of our team, which is the seventh consecutive annual performance report.

In an era of fast development of socio-economy and medical technologies, people have higher demands of medical services. Accordingly, as National Center for Cardiovascular Diseases China, Fu Wai Hospital faces the demands of the whole country and its people, and tries to explore how to provide more premium medical services in a better way. In 2014, all centers and wards of Internal Medicine zealously cast the first stone in launching several international leading technologies, and comprehensively elevate the academic level of Internal Medicine, which can be verified by the facts that the top one and two rankings of cardiovascular diseases departments, evaluated in the Gross Ranking of the Best Hospital Specialties in 2013 and published by Hospital Management Institute of Fudan University, and the first ranking of the most influential specialized hospitals in academia nationwide is also awarded to Fu Wai Hospital.

We are definitely aware of the long-term exploring process. Therefore, we are inheriting always-pursued philosophy of quality and innovation to realize the transformation from a pure medical center to a medical research center, to ensure the advantages of national team and to ascertain the position and long-term goals of international medical research center. To be specific, we are realizing four possessions, which are top-notch research platform, research results, talent team and culture, to guarantee the achievement of the goal of creating a top international medical research center. Persistent efforts are devoted to clinical treatment, medical education and technology innovation of cardiovascular diseases.

We are devoting ourselves to expanding disciplinary territory, establishing a sound cardiovascular related disciplinary team and multi-faceted prevention and treatment of cardiovascular diseases. Hopefully the information in this report could serve as a reference and favorable help when the profession and the public choose treatments and services of cardiovascular diseases, and also provide reference for further understanding of related information of Internal Medicine of Fu Wai Hospital for professions domestically and abroad.



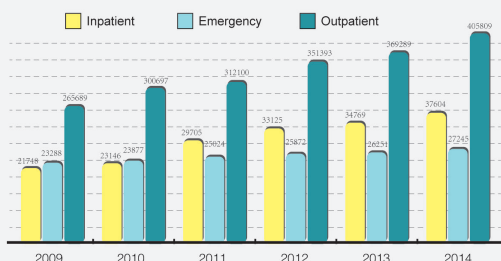
Overview of the Department of Cardiovascular Medicine

Overview of the Department of Cardiovascular Medicine

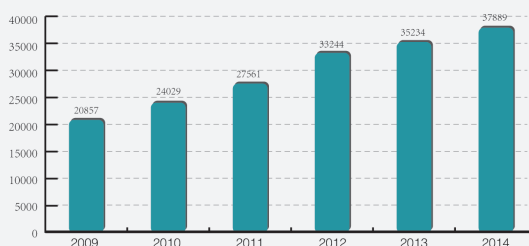
The Department of Cardiovascular Medicine includes 10 treatment centers, 24 wards, 1 drug monitoring unit & key laboratory in clinical research of cardiovascular drugs of the Ministry of Health, and 2 core laboratories. During 2014, the Department of Cardiovascular Medicine managed 37,604 inpatient admissions and 405,809 outpatient visits. The Department of Cardiovascular Medicine is recognized as the leading department in China for the diagnosis and treatment of coronary artery disease, arrhythmia, heart failure, secondary hypertension, and other complications of heart disease.

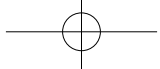
The inpatient hospital stay is 5.1 days on average, the actual utilization rate of sickbeds is 105% and the inpatient mortality rate has been reduced to 0.18%, which meets the international standard. A total of 37,889 interventional therapeutic procedures were performed at the Department of Cardiovascular Medicine during 2014, indicating that our hospital has become one of the world's largest treatment centers.

Numbers of outpatients and inpatients managed per year from 2009 to 2014



Numbers of interventional therapeutic procedures performed per year from 2009 to 2014

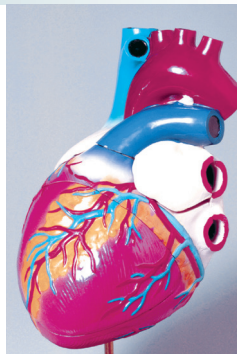
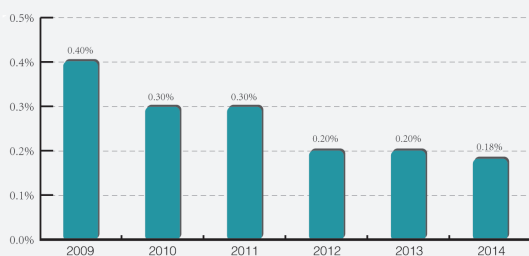




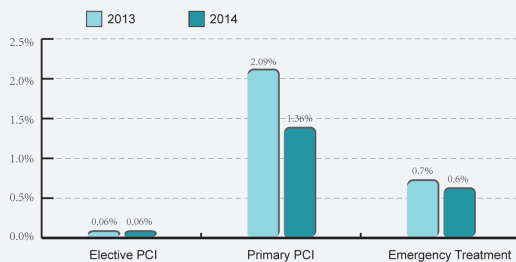
Overview of the Department of Cardiovascular Medicine

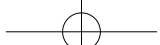


The inpatient mortality for the last 6 years



The inpatient mortality for the last 2 years



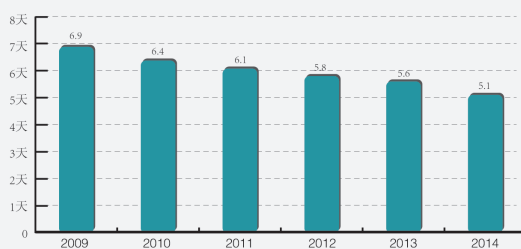


Overview of Department of Medicine



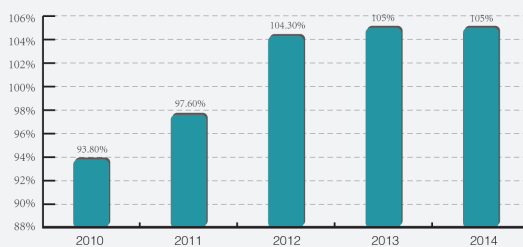
用心守护健康
海石医疗美容

The average hospitalization days per patient admission for the last 5 years

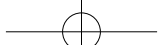


The average hospitalization days per patient admission for the last 5 years

The hospital bed occupancy rate for the last 5 years



The hospital bed occupancy rate for the last 5 years



Coronary Heart Disease Center

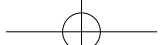
The Coronary Heart Disease Center of Fu Wai Hospital was founded in 1978. Some of China's leading cardiologists, including Professors Shou-Qi Tao, Zai-Jia Chen Yi-Shu Xu, Ji-Lin Chen, and Yue-Jin Yang were former directors of the Center. Professor Shu-Bin Qiao is the current director. The center was originally named as the Center for Diagnosis and Treatment of Coronary Heart Disease and was renamed in 2003. The center is committed to achieving excellence in clinical care, research and education. The staffs working at the center now include 34 professors including an academician of engineering. Sixteen physicians, 18 in-hospital doctoral students, and 10 graduate students were trained at our center. In 2014, 21 students were graduated from the interventional training base, and 108 training physicians specialized in coronary heart disease were cultivated.

The center includes 7 wards, 1 coronary care unit, 1 intensive care unit (ICU), and 230 inpatient beds. The number of percutaneous coronary intervention (PCI) procedures performed reached a record high of 13,655 in 2014. High-risk patients with disease of more than one coronary artery, complex lesions, or advanced age accounted for at least 3/4 of cases, including 11,421 patients with multi-vessel disease, 565 patients with left main coronary artery disease, and 2,256 patients with chronic occlusive disease. More than 12,432 (91.1%) PCI procedures were performed via the radial artery. The quality of the PCI service is continually improved, as evidenced by the significantly decreased mortality rate for elective procedures (0.06%, 8/13,655) and the low mortality rate for acute procedures (1.36%, 6/660). The quality, quantity and number of PCI procedures performed via the radial artery were higher than those in any other centers worldwide.

For many years, the center has conducted live broadcasts of complicated coronary PCI on large international conferences covering TCT-AP in Korea, Pakistan Cardiac Society, Euro-PCR in Europe and TCT in America. The center has therefore gained global recognition and has become the largest PCI and transradial intervention center worldwide. In 2014, the center completed 36 cases of TAVR (total 60 cases) and 9 cases of percutaneous ventricular partitioning device (Parachute), total 12 cases, and two severe cardiac dysfunction patients received successful PCI with the assistance of Impella device.

In 2014, the center received longitudinal funding from 16 different research grants, with a total 5.48 million RMB, including 10 national funds, 1 municipal fund and 5 Chinese Academy of Medical Sciences funds. Seven scientific research projects supported by enterprises, including 5 clinical trials about medical device, a drug clinical trial and an optional program. One patent was approved. Our research resulted in the publication of 63 articles during 2014, including 31 indexed by the Science Citation Index (SCI).

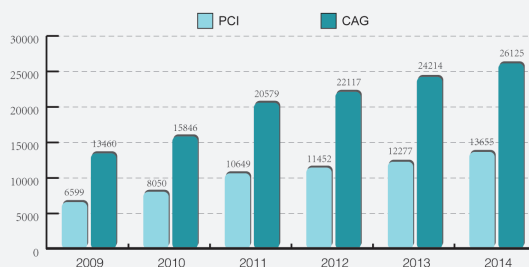




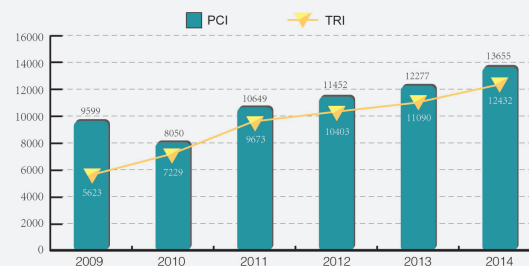
Coronary Heart Disease Center



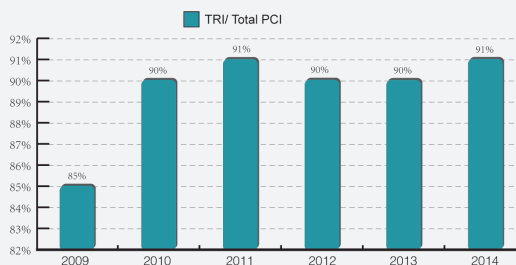
Numbers of coronary angiography (CAG) and percutaneous coronary intervention (PCI) procedures performed per year from 2009 to 2014

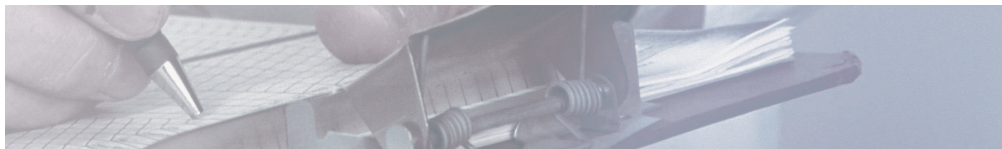
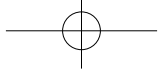


Numbers of PCI and PCI by transradial intervention (TRI) procedures performed per year from 2009 to 2014

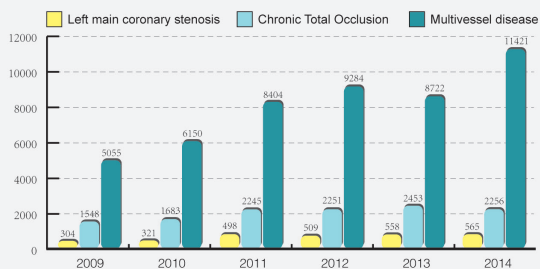


The proportion of TRI/Total PCI procedures performed per year from 2009-2014

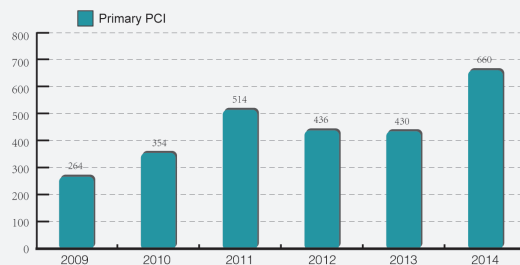




Numbers of patients with complex coronary artery disease who underwent PCI procedures per year from 2009 to 2014

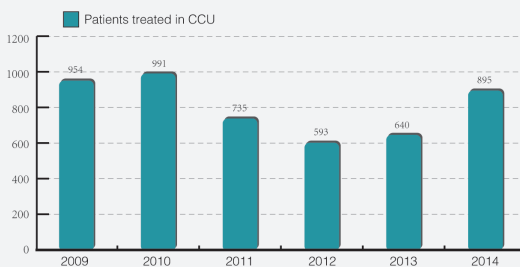


Numbers of patients who underwent primary PCI procedures per year from 2009 to 2014



Numbers of patients who underwent primary PCI procedures per year from 2009 to 2014

Numbers of patients admitted to the coronary care unit per year from 2009 to 2014



Coronary care unit (CCU) has 16 beds, in 2014, total 895 AMI patients were treated in CCU with an in-hospital mortality of 1.29%





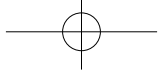
Cardiac Arrhythmia Center



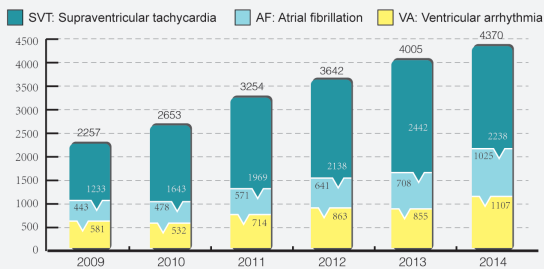
The Clinical Electrophysiological Laboratory of Fu Wai Hospital was founded in 1981, and was the only one domestic professional institution that engaged in research and treatment of cardiac arrhythmias at that time. Professor Chen Xin and Professor Wang Fangzheng, as the center directors in succession, led the clinical electrophysiological laboratory ever since it was established. Professor Zhang Shu is the current director of the Cardiac Arrhythmia Center. The Laboratory changed its name to Cardiac Arrhythmia Center since 2003. Currently, the center has 10 Professors (Chief Physician) including 3 professors who are recipients of special government allowance, 8 deputy chief physicians, 25 doctoral students, 11 graduate students, 6 equivalents to apply for PhD. In 2014, the center had 11 students who graduated from intervention training program and 22 professional-training students for arrhythmia specialty. The center takes advantages of talented professionals that dedicate to collaborative operation and high technology adoption, and manage the variety of difficult arrhythmia cases with the "all-weather capability." Therapeutic range covers all types of arrhythmias. The curative efficacy and follow-up standards have reached to the international advanced level.

Cardiac Arrhythmia Center now has 4 wards with over 100 beds. Since 2001, the center has conducted more than 25,000 cases of arrhythmia catheter ablations and implanted over 12,000 pacemaker/ICD units. In 2014, the center performed 1763 pacemakers-ICDs-CRTs implantation and 4370 catheter ablation therapies including 1025 atrial fibrillation cases and 1107 cases of ventricular arrhythmias. From the point view of quantity and quality, the center has long been recognized as the No.1 arrhythmia management institute in the Asian-Pacific region, and it has stood among one of the largest arrhythmia interventional treatment centers in the world, as shown in Figures below. The center always actively develops and adopts new technologies for treatment of arrhythmias. In 2013-2014, the center had successfully carried out different types of left atrial appendage occlusion therapy, the first cases performed in China. In 2014, the center had successfully performed the first subcutaneous ICD (S-ICD) implantation as well as the first implantation of the device for cardiac contractility modulation (CCM) in China. Furthermore, the Cardiac Arrhythmia Center, as the chairman unit of the Medical Society of Electrophysiology and Pacing Branch, Beijing Medical Society of Electrophysiology and Pacing branch and the Chinese Medical Association arrhythmia Professional Committee, has played an essential role in the academic and education exchange programs both in China and abroad and has advocated and popularized new concepts and techniques in the field of arrhythmia treatment in China. As one of leading institutes in Asian-Pacific region, the center expands its accelerating influence in international and regional academic activities. The center hosted the second annual symposium of Asia-Pacific Heart Rhythm society region in 2009. Professor Zhang Shu as the Secretary-General will host the 2015 World Congress of Arrhythmia in Beijing.

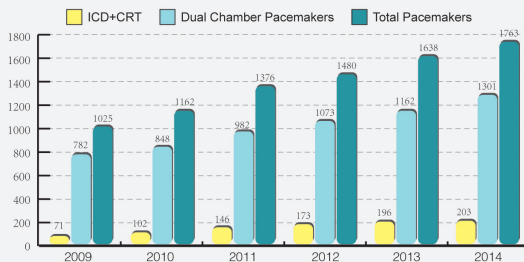
Moreover, the Center has successfully led key scientific programs of the national 10th five-year and 11th five-year projects, which focused on the incidence of atrial fibrillation and sudden cardiac death in China, and the findings derived from these two 5-year projects were published internationally. At present, working together with other divisions, the center is taking the lead in three cornerstone programs of the national 12th five-year project. In 2014, the center obtained 9 scientific research grants sponsored by the government, a total of 2.79 million RMB funding, including 5 national funds, 1 Beijing municipal fund, 2 projects supported by Chinese Academy of Medical Sciences; 8 scientific research projects supported by enterprises, including 4 clinical trials about medical device, 4 optional research projects. In 2014, the center had published a total of 55 papers, including 13 SCI papers.



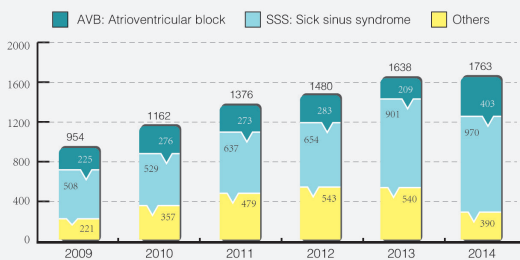
Numbers of radiofrequency catheter ablation procedures performed according to type of arrhythmia per year from 2009 to 2014



Numbers of devices implanted per year from 2009 to 2014



Types of arrhythmias treated with implantable devices per year from 2009 to 2014





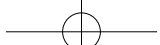
Hypertension Center

The Hypertension Center of Fu Wai Hospital was founded in 1978, the center was originally named the Institute of Hypertension, and was renamed in 2003.. Professors Li-sheng Liu, De-Yu Zheng, Guo-Zhang Liu, Ru-Tai Hui were former directors of the Center. Professor Xiong-jing Jiang is the current director. The staffs working at the center now include 4 emeritus professor, 4 full professors, 5 associate professors. There were 4 in-hospital doctoral students, 9 graduate students, and 108 visiting scholars were trained at the center in 2014.

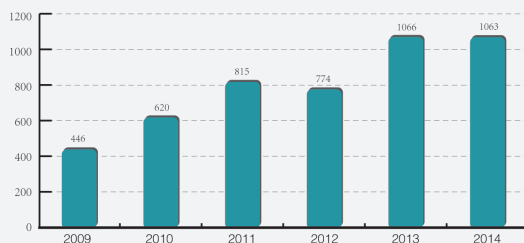
This center specializes in the research and treatment of hypertension, and includes a ward with 38 inpatient beds. It has become one of the largest centers in the Asia-Pacific region specializing in the management of hypertension and peripheral vascular disease. The staff members have extensive experience in the standard management of secondary hypertension, resistant hypertension, and peripheral vascular disease. The center has a prestigious leading role in the field of hypertension treatment, providing interventional diagnosis and treatment of peripheral vascular disease. The number of cases managed is currently increasing by 30% per year. A total of 741 therapeutic interventions were performed in 2014, with a complication rate of 0.8% and mortality rate of 0.13%, which is lower than that reported by other centers internationally. Long-term treatment outcomes are also excellent compared with other centers internationally. During the past year, 493 high risk cases of supra-arch artery (carotid artery, vertebral artery and subclavian artery) and 212 cases of renal artery interventional therapy were performed, both ranked first in China. The Hypertension Center has treated 71 patients with primary aldosteronism using percutaneous selective adrenal artery embolization. In 2014, the center firstly explored the application of molecular diagnosis technology in young refractory hypertension patients, made the diagnosis and treatment standards and processes of secondary hypertension, refractory hypertension to reach the international advanced level.

The Center organized and participated in compiling most of the "Guidelines for Prevention and Treatment of Hypertension in China", participated in the international cooperation projects "PROGRESS" "INTER-HEART" and "CCS-2". The Center won many National Science and Technology Progress Awards (second prize), and currently conducting the national 12th five-year project of "Resistant Hypertension".

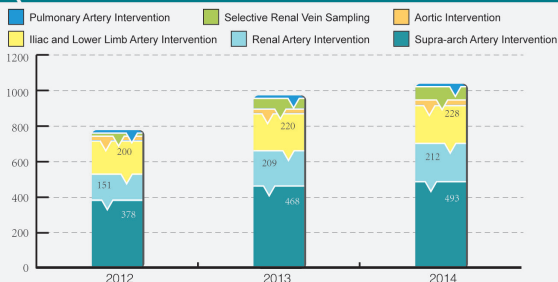
In 2014, the center obtained 4 scientific research grants sponsored by the government, a total of 2.67 million RMB funding, including 2 national funds, 1 Beijing municipal fund, 1 projects supported by Chinese Academy of Medical Sciences;6 scientific research projects supported by enterprises, including 2 clinical trials about medical device,4 optional research projects. Fourteen articles indexed by the Science Citation Index (SCI) were published in 2014.



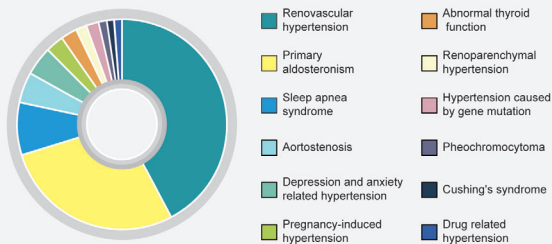
Numbers of patients who underwent peripheral vascular angiography per year from 2009 to 2014



Categories of Peripheral Vascular Intervention in the last 3 years



The constituent ratio of secondary hypertension in HT center in 2014





Clinical Pharmacology Center

& Key Laboratory of Clinical Trial Research in Cardiovascular Drugs, Ministry of Health



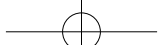
The Institution for Drug Clinical Trials of Fu Wai Hospital was approved by the Ministry of Health in 1983, at the same time, Professor Shou-qi Tao recommended the establishment of clinical pharmacology laboratory. Professor Ping Tao served as the first director for the Institution for Drug Clinical Trials and clinical pharmacology laboratory. Academicians Run-lin Gao and Sheng-shou Hu, were former directors of the Institution for Drug Clinical Trials, respectively. Professor Yi-shi Li is the current director. Clinical pharmacology laboratory was renamed to Clinical Pharmacology Center in 2003. In 2001, "Key Laboratory of Clinical Trial Research in Cardiovascular Drugs, Ministry of Health" was approved by the Ministry of Health, on the basis of clinical pharmacology laboratory. The Key Laboratory obtained "LABORATORY ACCREDITATION CERTIFICATION" of ISO17025 and metrology certification by China National Accreditation Service for Conformity Assessment, demonstrating the adoption of the international standards. Key Laboratory of Clinical Trial Research in Cardiovascular Drugs, Ministry of Health undertook national foundations, Beijing government foundations and other research topics, including human drug metabolism studies, clinical trial research, therapeutic drug monitoring (TDM), gene and proteomic research. The center also includes Fu Wai Hospital Institution for Drug Clinical Trials, Phase I Clinical Trial Research Laboratory, Adverse Drug Reaction (ADR) Monitoring Office, wards four medical, and phase I Clinical Trial ward. The staffs working at the center now include 3 professors with one recognized as the government subsidy expert, 7 vice professors. Seven Doctoral students and 7 Master graduate student were trained at our laboratory in 2014.

In 2014, 4 state-sponsored research projects and 3 research projects sponsored by Beijing government or other agents were ongoing. Three drug clinical trials were continued working on the key lab employed the established 'Key Technology Platform for Clinical Evaluation of Cardiovascular Drugs'. Our research resulted in the publication of 20 articles during 2014, including 5 that were indexed by the Science Citation Index (SCI) and gained 1 Computer software copyright registration certificate.

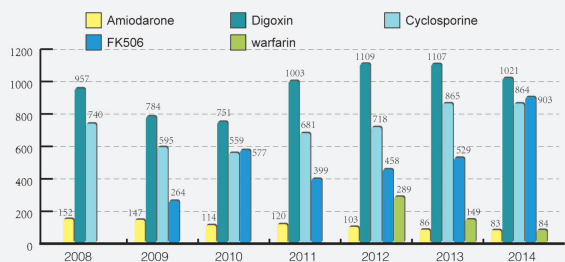
In 2014, "Institution for Drug Clinical Trials" has successfully passed the daily supervision and inspection by food and drug administration of Beijing xicheng district and four projects on-site inspections by CFDA. To strengthen the quality control of drug/medical device clinical trials, supervised 61 clinical trials, including 27 clinical trials of drugs, 34 medical device clinical trials, supervised CRF 511 copies. The Laboratory sets up the quality control system, identifies the problems and takes corrective actions. To improve the management efficiency of hospital drug clinical trials, the "clinical trial institution management" software is launched.

In 2014, a total of 201 cases of adverse drug responses were reported. 49 cases of adverse medical device were reported. The Adverse Drug Reaction Monitoring office obtained two rewards for drug adverse and medical device adverse event routine monitoring advanced units by Beijing Municipal Commission of Health and Family Planning and Beijing Center for ADR Monitoring.

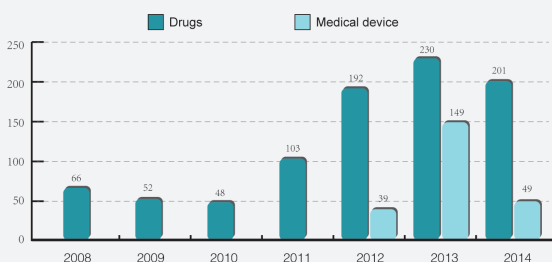
In 2014, the key laboratory continued undertaking its responsibilities in monitoring therapeutic drugs at Fuwai Hospital. This includes 1021 digoxin cases, 864 ciclosporin cases, 83 amiodarone cases, 903 FK506 cases, with a total of 2227 cases. Genotyping was carried out for clinical samples 84 subjects in this year, for providing guidance on individualized clinical application of Warfarin.



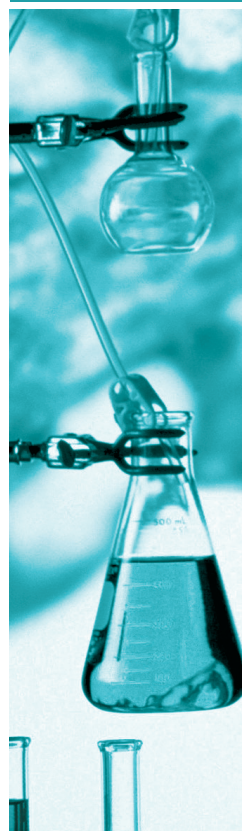
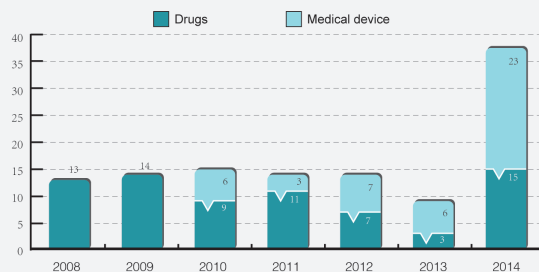
Numbers of patients undergoing therapeutic drug monitoring per year from 2009 to 2014

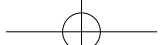


Numbers of adverse drug reactions reported per year from 2009 to 2014



Cases of clinical trial administered by the Institution for Drug Clinical Trial from 2009 to 2014





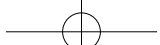
Pulmonary Vascular Disease Center



Research Laboratory for Cor Pulmonale and Pulmonary-Cardiac Circulation of Fuwai Hospital was founded in 1972, and then renamed as Pulmonary Vascular Diseases Center in 2003. The former director of the center is Prof. Xiansheng Cheng and now the director is Prof. Jianguo He. The PVD center now has four professors (Chief Physician), two associate professors (associate chief physician), five PhD candidates, one master student, and has trained three trainee doctors in Pulmonary Vascular Diseases in 2014.

The PVD center has one Ward and forty beds. PVD center is dedicated to a wide spectrum of cardiovascular diseases, and is extremely famous across China for pulmonary vascular diseases including pulmonary embolism, pulmonary hypertension (PH), and right heart diseases. The number of inpatients of the center was 1881 (including 661 with pulmonary hypertension and 153 with acute pulmonary embolism) and the number of patients who underwent right heart catheterization examination and pulmonary vascular intervention was 172 in 2014. Great achievements were made in the diagnostic accuracy, healing rate and improvement rate, success rate of rescue, bed utilization ratio and medical costs of single disease. And cardiopulmonary exercise testing has been carried out on patients with pulmonary vascular disease creatively.

The staff of the center undertook a total of 6 programs, including three Key Projects in the National Key Technology R&D Program during the Twelfth Five-Year Plan Period. Also, the center undertook a total of many projects of National Natural Science Foundation of China and some other projects, and 11 international multi-center clinical trials. In 2014, the center has published 21 papers, among which 15 were indexed by SCI. As the leading center, the center achieved the First Prize of Science and Technology Progress Award of the Ministry of Education of People's Republic of China, and the Third Prize of Science and Technology Progress Award of Beijing City in 2014.



Emergency and Intensive Care Center

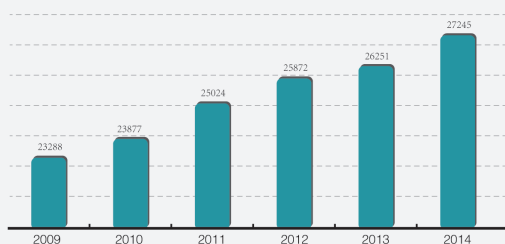
Emergency and Intensive Care Center of Fu Wai Hospital was founded in 2009 based on the former Emergency and First Aid Center. Professor Yang yanmin is the current director, and Professor Zhu jun and Zhang jian were former directors of the center. Our faculties are comprised of 7 professors (chief physician) including 2 associate chief physicians. There are 7 doctoral students, 5 graduate student, and 2 equivalent graduate students currently in training program. Over 100 physicians completed their specialized emergency training in 2014.

The center consists of Emergency Room and three wards: ICU, Ward No.29 and Step-down Ward with a total of 107 inpatient beds. It is one of the largest centers specialized in the clinical management and research of acute severe cardiovascular disease. A dozen of experienced and highly academic clinical experts work daily in the center, equipped with all kinds of state of the art first-aid apparatus. A total of 27245 seriously ill patients were treated in ER in 2014 with more than 99% survival rate. The ER staffs treat patients with cardiovascular emergencies such as acute coronary syndrome (acute myocardial infarction, unstable angina), large vessel disease emergencies (aortic dissection), hypertensive crisis, congestive heart failure, arrhythmia, etc. ICU, Ward No.29 and Step-down Ward are experienced in treating patients with critical/end-stage ischemic heart disease, myocarditis, critical cardiomyopathy, valvular heart disease, aortic dissection and pericardial disease, etc. In sum, 5443 inpatients have been admitted throughout the year.

Chest Pain Center, located in ER, provides one-stop high-quality and precise medical service without delay for critical cardiovascular patients presenting with chest pain, while establishing green channel for ACS and large vessel disease.

In 2014, 3 horizontal research subjects of the center were applied. As national coordinating center the center undertook several international multicenter clinical trials including AVERROES, Inter-CHF, GLORIAL, HOPE- 3, COMPASS, ELIXA, etc. Our research resulted in the publication of 21 articles during 2014, among which 13 were indexed by the SCI.

Numbers of patients treated in the emergency room per year from 2009 to 2014





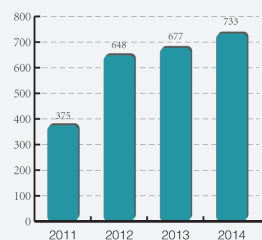
Endocrinology and Cardiovascular Diseases Center

Endocrine and Cardiovascular Disease Center was established in 2011, professor Guangwei Li is the current director. The staffs working at the center include 2 chief physicians, 3 vice-chief physicians, 1 in hospital doctoral students, 2 graduate students.

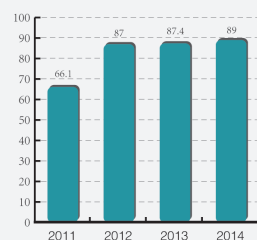
The center has 1 ward, 25 beds. Outpatient number in 2014 was 8553, remaining flat with 2013, the discharged patient number has reached 733, increasing by 7.6% compared with 2013, the average usage of each bed in ward was 89%, which was slightly increased compared with 2013, the amount of consultation reached 2000 cases, increased by 10% compared with year 2013. The insulin pump intensive treatment in newly diagnosed type 2 diabetes, which was characteristic treatment of the center, was kept conducting since the center was established. 223 cases completed the special treatment until the end of 2014 in total, with about 50% remission rate. The program - "The standardized systemic management of hyperglycemia in the whole hospital", which was initiated in 2012, was kept conducting, almost all the ward in the whole hospital was covered with monitoring instruments in the past two years. Since November 2014, 45 cases in some cardiac surgical wards in North building was conducted with intensive pump therapy during perioperative period, which achieved much better glycemic control, reduced perioperative complication as consequence result. The center was approved for "Chinese Diabetes Society Diabetes Care and Education Authentication Base" in 2014, several nurses were trained to be specialized in diabetes education, who provided special diabetes care and education, such as lifestyle intervention and medication advice to diabetic patients, which plays a key role in better glycemic control, delaying diabetic complication and improving life quality.

The center was approved as the national pharmacological test center in 2014, and one undergoing phase-3 clinical trial was undergone, two phase-4 clinical trials had already approved by the ethics committee of Fuwai hospital. The study "the China Daqing Diabetes Prevention Outcome Study" which led by center director, professor Guangwei Li, was conducted continuously in 2014. In 2014, the center hosted 9 studies in total, of which, 2 are newly funded. The center has 4 publications, 1 of which was collected by SCI.

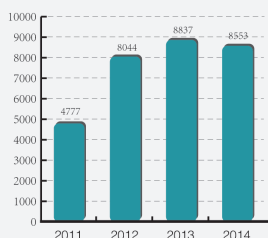
The number of discharged from 2011-2014



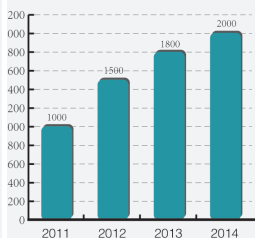
The rate of bed usage (%)



The number of outpatient from 2011-2014



The number of consultation from 2011-2014





Dyslipidemia and Cardiovascular Disease Center

Center for Dyslipidemia and Cardiovascular Disease (CDCD) was established in October, 2010 and the current Chief of the center is Professor Jian-Jun Li, MD, PhD, FESC. The main works of the center focus on the clinical practice, education, scientific research with respect to lipid disorder and cardiovascular disease, especially atherosclerotic cardiovascular disease. The principle staff of the center consists of two professors and four associate professors whose major interest of medical practice and research is lipid profile and disease. There are a postdoctoral fellow, three doctoral and two master students, and three visiting scholars working for the investigation on the cardiovascular science.

A 25B ward is currently affiliated to CDCD, which locates at North Building of Fu Wai Hospital, and there are nominal 21 sickbeds prepared mainly for patients with coronary heart disease accompanied by lipid disorder. Basic research unit of the center is covered by State Key Laboratory of Cardiovascular Disease at MenTouyou district, Beijing. The principal research fields of CDCD are comprised of the prevention and treatment of coronary artery disease, especially focusing on the translational medicine with regard to the association of primary or secondary dyslipidemia and inflammation with atherosclerotic diseases. CDCD is the earliest center in China which is established specially for dyslipidemia and cardiovascular disease.

Achievements on clinical practice of CDCD during 2014 have also been remarkable similar with past few years. A total of 2147 patients with cardiovascular diseases (mainly CHD) were admitted to the center. Of them, 2015 patients were successfully performed with percutaneous coronary intervention (PCI) or coronary angiography (CAG). More importantly, in 2014 there were no medical accidents, deaths, medical complaints, and key medical errors.

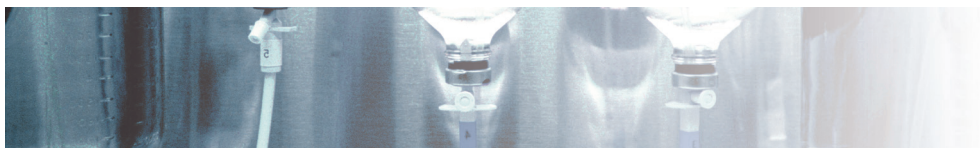
A series of public health educations on Beijing TV, and successful blood lipid forum during China Heart Congress' 2012 were wonderfully accomplished. The CDCD team maintains regular and heuristic clinical discussion, medical literature reading (totally more than 90 times) and mini lectures (46 times). Every young physician in CDCD team actively participated in writing application document for National Natural Sciences Fund and scientific papers. Every one of them gave academic lectures several times. In addition, there is a scientific research discussion meeting every week for team members. Except for postgraduate for Ph.D, post-doctoral and visiting scholars are also accepted in CDCD team.

Not surprisingly, 2014 is the fruitful year for CDCD regarding scientific achievements. There are more than ten scientific topics supported by special foundations. More than 34 peer-reviewed SCI indexed papers had been published with the highest IF 6.175 during 2014 (total impact factor is more than 90 scores). Two prizes were awarded to the center in 2014. Associate Editor-in-chief of international (World Journal of Cardiology) and domestic journals (Chinese Journal of Arteriosclerosis) were awarded to CDCD team member. The CDCD team principally focused on the research fields covering particle and function of high-density lipoprotein (HDL), relationship and mechanism of inflammation and metabolic disorder of lipoprotein, Genomics research of lipid disorder, new serum biomarker and cardiovascular events (outcome research) and prospective clinical study (there are 4 ongoing international and national prospective clinical researches). The research achievements regarding PCSK9 from CDCD have attracted interest of colleagues throughout the world.

用心守护健康
Jian-Jun Li

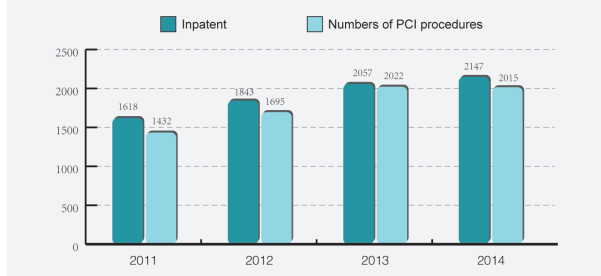


Dyslipidemia and Cardiovascular Disease Center



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Numbers of Inpatients and PCI procedures performed per year from 2011 to 2014



All the Staff of Dyslipidemia and Cardiovascular Disease Center



Heart Failure Care Center

Heart Failure Center (HFC), including heart failure care unit and heart transplantation ward, is a key platform for the diagnosis, treatment and research of heart failure in Fu Wai Hospital since 2005. HFC has focused on the clinical practice of heart failure and research, as well as prevention and patient education. In the past decade, an active and professional team has developed in HFC which has achieved remarkable progress.

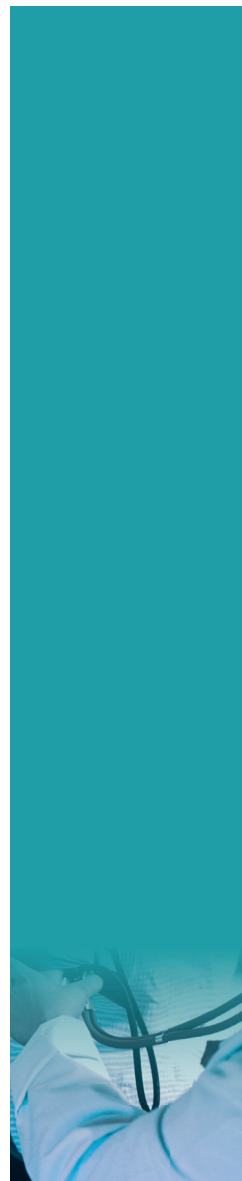
HFC consists of heart failure intensive care unit (HFCU) and heart transplantation ward. Over the years, HFCU has succeeded in diagnosis and treatment of a lot of severe and complex cases with a variety of causes, such as glycogen storage disease, mitochondrial disease and giant cell myocarditis. In 2014, HFCU has received 571 patients. Since 2004, Heart transplantation ward has completed 479 cases of heart transplantation, about 50 to 65 cases every year. The number of transplantation ranks in the first in China. At present, the survival rate is 86.9% for five years in our center.

HFC also attaches great importance to the medical development and application of new technology. In China, we first used non-invasive positive pressure ventilation in the treatment of acute heart failure, ultrafiltration to remove fluid in patients with acute or severe heart failure, intravenous infusion of β blocker save ischemic acute heart failure and so on. Furthermore, Multidisciplinary collaboration for mechanical adjuvant therapy (for example ECMO, IABP) in patients with severe heart failure is a bright spot.

HFC also undertakes multiple programs for clinic and basic research, including the 12th Five Years Key Programs for Science and Technology Department of China, National Nature Science Foundation, Capital Medical Development Foundation, clinical trials at phase III-IV for cardiovascular medicines and international multicenter trials. At present, we have established the Chinese heart failure data platform. Registry study of heart failure, myocardial energy metabolism of heart failure and biological marker research are in the leading position in China. A series of research papers, including 2 SCI papers, on heart failure has been published in prestigious journals, such as the Journal of the American College of Cardiology (JACC), European Journal of Heart Failure (EHFJ).

HFC has actively engaged in academic collaboration both nationally and internationally, and promoted the application of knowledge on heart failure. We keep a good relationship with Heart Failure Association of the European Society of Cardiology (HFA of the ESC) and Heart Failure Society of America. We organized the 2014 Heart Failure Symposium in China Heart Congress. The center has also hosted a series of national seminars and training courses on heart failure, so as to provide the knowledge of heart failure and introduce new therapies nation-wide. HFC has now taken charge of the drafting of 2014 Chinese Guidelines on the Diagnoses and Treatment of Heart Failure. "Heart Failure" edited by the center and published in 2010 in China is considered to be the best reference book on heart failure.

In conclusion, the center has contributed greatly to the understanding of the etiology of heart failure and improvement of heart failure diagnosis and treatment in China.





Thrombosis and Vascular Medicine Center

Thrombosis Medicine Center of Fu Wai Hospital was founded in 2013. The center is committed to achieving excellence in clinical care as well as directing clinical research, basic research and epidemiological studies. Professor Zhi-Cheng JING was appointed as the first director of this center. Current faculties include one professor, three associated professors, and three emeritus professors who are dedicated to daily instructions of clinical work and training of the younger generation of clinicians and scientists. There were five in-hospital doctoral students and three master's students at the center. In 2014, twelve cardiology fellows and visiting scholars were trained here, three of whom were international graduate students.

The center includes: the outpatient clinic for thrombosis and anticoagulation, the special ward with thirty inpatient beds, and research labs in State Key Laboratory of Cardiovascular Disease. In 2014, totally 104 primary pulmonary embolism (PE) patients and 429 pulmonary hypertension patients were admitted to the ward. In the same year, the center established a rapid channel for critically ill patients, helping 125 cases of critical pulmonary thrombosis or pulmonary vascular disease patients transfer to the inpatient ward from emergency department. The center also established clinical observation and research work for new oral anticoagulants (NOACs) and novel pulmonary hypertension targeted drugs. The center was the first to administer full dose rivaroxaban to treat acute PE with standard procedure in China, and has exceptional experience in treating PE with NOACs after more than 100 cases.

To expand laboratory tests for thrombotic disease diagnosis, in cooperation with clinical laboratory department, we initiated tests for antithrombin III, protein C and protein S, filling the gap in this field for the hospital. The center promoted pulmonary hemodynamic research, pulmonary intravascular imaging study and pulmonary artery interventional treatment. Totally 419 cases of right heart catheterization and acute vasoreactivity testing were accomplished in 2014. In collaboration with surgical division, the center pushed forward pulmonary endarterectomy (PEA) for CTEPH patients and organized specialists to visit UC San Diego Health System for PEA training. In the second half of 2014, seven cases of PEA were accomplished successfully. All these advancements improved the diagnosis and treatment level for CTEPH of all related branches, including diagnostic radiology, interventional treatment, internal medicine and surgery.

The center was active in both national and international communications. The 6th Long March National Vascular Medicine Conference was held between 18th-20th, July, 2014 and more than 1000 experts and clinicians participated in the communication. In 2014, more than ten internationally renowned experts were invited to visit our center, including Steven Kawut, Director of Pulmonary Vascular Disease Program in University of Pennsylvania (Jun, 2014); Nick Kim, Director of Pulmonary Vascular Medicine in UC San Diego (Jul, 2014); Robert Naeije, Professor of Physiology of Free University Brussels (Oct, 2014).

In 2014, the center obtained 5 scientific research grants sponsored by the government, a total of 9.99 million RMB funding, including 3 national funds, 2 Beijing municipal funds, and Six clinical trials for new drugs were initiated. In 2014, the center had published six SCI papers. The center has been awarded with a Shu-Lan Medical Award for Talented Young Scholars.



Collaboration, Exchange, and Training

The Coronary Heart Disease Center invites more than 100 international experts for academic communication through conferences including CIT and CHC. For many years, interventional procedures on patients with complicated coronary heart disease in our center were rebroadcasted on large international conferences covering TCT-AP in Korea, Pakistan Cardiac Society, Euro-PCR in Europe and TCT in America. The operation techniques and skills were highly regarded and praised by both domestic and foreign cardiologists.

The Coronary Heart Disease Center regularly invites international experts for operation demonstration and communication. Meanwhile leading experts from Japan were also invited to the annual Fujiwara Tsuchikane CTO retrograde technique workshop. This not only promotes communication between domestic and foreign interventional cardiologists, but also improves our therapeutic level.



On the opening ceremony of the Transcatheter Cardiovascular Therapeutics (TCT) in September 2014, experts in our center performed TAVR with VENUS-A, a domestic artificial valve in an aortic valve stenosis patient with bicuspid aortic valves. More than 20,000 experts from all over the world witnessed the success of China, a milestone in the development of TAVR.





Collaboration, Exchange, and Training

In August 2014, Cardiac Arrhythmia Center invited professor Pengsheng Chen, the chief editor of Heart Rhythm journal, to introduce the research trends and hot points based on papers published in Heart Rhythm Journal, and analyzed the papers from China during the past one year.



The Hypertension Center hosted the First Peripheral Artery Disease (PAD) and Refractory Hypertension Interventional Treatment Training Class on June 27-28th and December 18-20th in Beijing, each of which was attended by more than 100 physicians. Well-known domestic experts in the fields of PAD and refractory Hypertension Interventional Treatment operated marvelous demonstration. The class improved the clinical and theoretical knowledge of the participants, standardized the diagnosis and treatment of PAD and refractory hypertension.

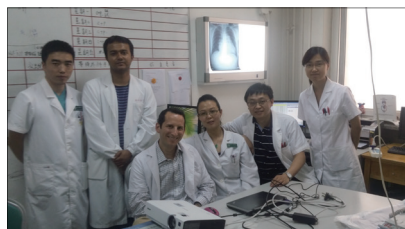




In Jul 2014, The Thrombosis and Vascular Medicine Center held The sixth session of the "Long March" pulmonary circulation and thrombotic diseases conference. More than 1000 experts and scholars attended the meeting and exchanged their ideas and the latest research findings.



Professor Steven Kawut from University of Pennsylvania visited the inpatient ward and discussed two complicated cases with the clinicians in Thrombosis Medicine Center.



2014.10.18-20 Xiyang Guo had an oral presentation on Acute cardiovascular care 2014: "Long-Term Outcomes of Extreme Right Ventricular versus Extreme Left Ventricular Hypertrophy in Hypertrophic Cardiomyopathy "



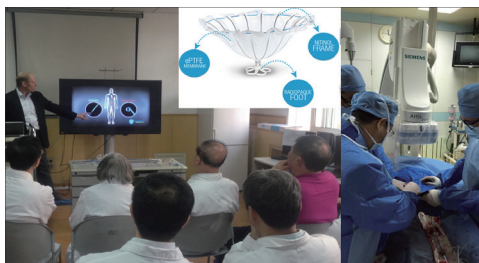
用心守护健康
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海石美林



Innovation and New Technology

Percutaneous ventricular partitioning device for heart failure after myocardial infarction

Percutaneous ventricular partitioning device (PARACHUTE) is a new approach applied for patients of cardiac dilatation with ventricular aneurysm after myocardial infarction. During the operation, a pre-folded Parachute device is released at the apex of the left ventricle guided by ultrasound. The normal ventricle is isolated from the ventricular aneurysm, which reduces the preload, alleviates symptoms and improves cardiac function. In 2014, the center completed nine successful procedures and led the first domestic premarket clinical registry of the device.



Domestication of transcatheter aortic valve replacement (TAVR)

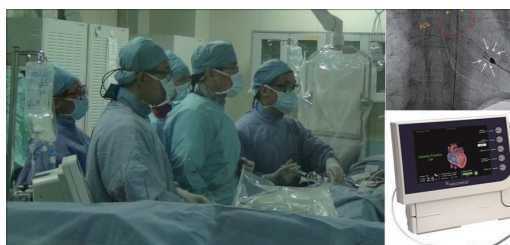
Our center led the first clinical research program of TAVR in China. Despite of several failures and explorations, we managed to optimize the domestically developed artificial valves with complete intellectual property rights, with a set of preoperative assessment and operating methodology. The mortality of our own developed valves was similar with that of foreign products, while the operating complication was lower than that in international reports.





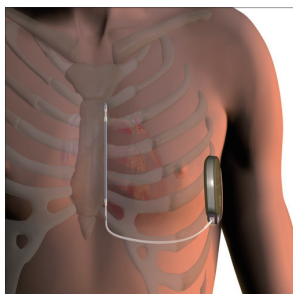
Novel assistant device for severe cardiac dysfunction

Percutaneous left ventricle assist device (Impella), an apparatus with pumping function, is a novel device delivered into the heart chamber through a transfemoral catheter to improve cardiac output. In 2014 two patients with severe cardiac dysfunction received PCI under the assistance of Impella in our center. The hemodynamics was stable during the operation and patients were discharged from hospital 3 days after PCI. In addition, a patient with severe cardiogenic shock was also implanted Impella successfully for left ventricle assistant therapy. The above three patients were also the first three cases of Impella system in Asia.

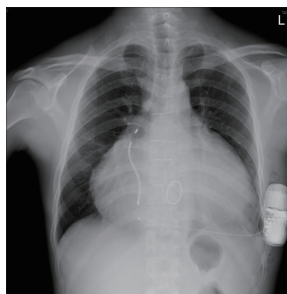


The clinical applications of Subcutaneous ICD (S-ICD)

ICD is the most effective method for the prevention of sudden cardiac death. In the conventional ICD implantation procedure, the defibrillation electrode lead is placed in the right ventricle through a peripheral vein and the pulse generator is implanted beneath the chest skin. The procedure requires X-ray guidance and perioperative complications may occur, such as pneumothorax, pneumothorax, electrode lead shift. In addition, the pocket infection, infective endocarditis (IE) and ICD lead failure are troublesome complications that often require removal of ICD electrode lead, causing additional complications and cost associated with lead removal. The S-ICD does not need place any lead in the heart through the veins, so avoids most of the drawbacks of the conventional ICD implantation. Moreover, the S-ICD implantation can be performed without the cath lab and X-ray guidance, what makes S-ICD more conducive to promote its application. Thus, the S-ICD has attracted wide attention since its first clinical application. On December 23, 2014, a tricuspid valve replacement patient who also suffered from recurrent ventricular tachycardia accepted the S-ICD implantation in Fu Wai Hospital, which was the first S-ICD implantation in China and establishes a new era of the new type of ICD applications in China.



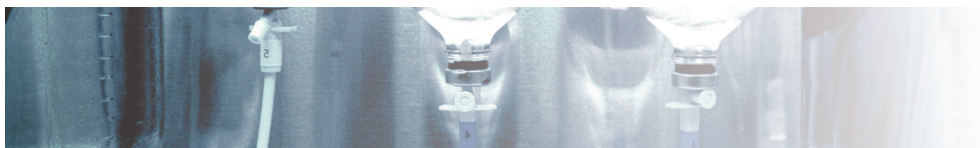
The schematic diagram of the anatomical location of Subcutaneous ICD.



The X-ray imaging of the implanted S-ICD



The X-ray imaging of the patient with the S-ICD implantation. The imaging shows a significant expansion of the right ventricle, the pulse generator locates on the left side of the chest wall and axillary line axillary line fifth to sixth intercostal subcutaneous pocket, the defibrillation lead is subcutaneously located at the right edge of the sternum.



The application of Implantable cardiac contractility modulation (CCM) device in treatment of chronic heart failure

CRT (cardiac resynchronization therapy, CRT) as an effective therapy to refractory heart failure patients has been adopted in recent years, but it has been well recognized that only heart failure patients with wide QRS wave ($> 120\text{ms}$) may benefit from it. Unfortunately, about 70% of the overall heart failure patients who have narrow QRS duration ($< 120\text{ms}$), cannot benefit from CRT.

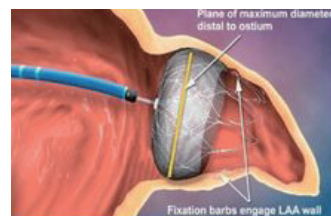
Cardiac Contractility Modulation (CCM), as a new medical device for chronic heart failure patients with narrow QRS, has been developed and approved for clinical use in the European market recently. On December 30, 2014, Fu Wai Hospital cardiac arrhythmia center implanted a CCM in a patient, the first case in China. That patient suffers from the symptoms of chronic heart failure more than four years though he has been under the optimal medical treatment for four years. At the CCM implant time, the patient had NYHA class III and LVEF 16.3% by echocardiograph. This first successful implantation of CCM in China may provide an opportunity for further domestic clinical assessment post-CCM to see whether CCM will become a feasible non-drug therapy for the treatment of cardiac dysfunction.



The schematic diagram of CCM anatomical location

The application of LAA occlusion

Atrial fibrillation (AF) is one of the commonest cardiac arrhythmias. Essentially, the vast majority of atrial fibrillation is the result of aging or tissue fibrosis, so the AF incidence increases with the population ages. In addition to the symptoms caused by palpitations, thromboembolic complications are the main hazard in AF patients. Although strict rhythm control therapy can be effective



The schematic diagram of LAA closure device (WATCHMAN)

in preventing thromboembolic events associated with atrial fibrillation, the current anti-arrhythmic drugs are unable to eliminate chronic/persistent atrial fibrillation completely. Given the more than 90% of thrombi from the left atrial appendage in non-valvular atrial fibrillation patients, it seems effective by removal of or blocking the left atrial appendage in order to prevent thrombosis. In 2014, Fu Wai Hospital cardiac arrhythmia center utilized the left atrial appendage closure technology including imported (watchman) and domestic occluder firstly in China. In the past year, dozens of patients underwent the left atrial appendage occlusion successfully.



Awards

As the leading center, the Pulmonary Vascular Diseases Center received the 1st Prize of Science and Technology Progress Award of the Ministry of Education of People's Republic of China, and the 3rd Prize of Science and Technology Progress Award of Beijing City in 2014.



The dyslipidemia and cardiovascular disease center received the 3rd Prize of Chinese Medical Science Award, 2014



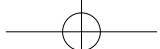
The clinical pharmacology center achieved a computer software copyright registration certificate: FUHUA model stable warfarin dose system software platform in 2014.



Thrombosis Medicine Center: Prof. Zhi-Cheng JING was awarded with the 1st Shu-Lan Medical Award for Talented Young Scholars.



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2014 outcomes

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