UCLA-SAHZU* Exchange Program
Cardiac Care in China

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*Second Affiliated Hospital of Zhejiang University School of Medicine (SAHZU)
Personal Experience from 2 + 4 weeks in China

• Introduction, Travel and Housing in Hangzhou, Zhejiang, China
• Background of the Second Affiliated Hospital of Zhejiang University School of Medicine (SAHZU)
• SAHZU Department of Cardiology Leadership
• Hospital Life and Clinical Experiences
• Life Outside the Hospital
• Health Care in China
• Conclusion
Hangzhou, Zhejiang Province
Hangzhou, Zhejiang Province, China

- Capital and largest city of Zhejiang Province, one of the seven ancient capitals of China
- Prefecture has approximately 8.7 million people (2010 census), 4th largest metropolitan area in China (21 million people in 2010)
- An economic and tourist hub since dynasty times
  - Marco Polo visited in 13th century, describing the city as “greater than any in the world”
  - Ibn Battuta in 14th century described it as “the biggest city I have ever seen on the face of the earth”
- Hangzhou Hi-Tech Industrial Development Zone considered “Silicon Valley” of China
- UNESCO World Heritage Sites
  - West Lake
  - Southern Terminus of Grand Canal
- Host of G20 Summit in 2016

http://en.wikipedia.org/wiki/Hangzhou
Travel to Hangzhou

- Perfect Organization from SAHZU International Center
- Visa at Chinese Embassy in Los Angeles (3 days processing, $120, first impression of China)
- Hangzhou International Airport has direct Flights from SFO and LAX – travel time around 10 hours
- Airport pickup and drop off in private limousine

Mingli

Hao-Ming

Jing
Housing

• Living in the VIP tower of the hospital
• Marriot like hotel

IT IS MAGICAL 😊
The Second Affiliated Hospital of Zhejiang University School of Medicine (SAHZU)

- SAHZU originally opened in 1869 as an Opium Refuge managed by Dr. Meadows of Church Missionary Society
- Later name changed to “Guang Ji” (“spreading benevolence and saving people”), managed and developed by Dr. Duncan Main, a Scottish missionary doctor
- Universal Benevolence Medical School founded in 1885
- Officially named a government hospital in 1952
- Department of Cardiology founded in 1989 along with interventional capacity
Ronald Reagan MC  
Jiefang Campus

Santa Monica MC  
Binjiang Campus

- 3200 beds combined
- In 2015: about 120,000 inpatients, 3.9 million outpatients
- About 106,000 inpatient and outpatient surgeries
Cardiology

- 162 inpatient beds
  - CCU
  - PCI lounge
  - Cardiology ward I
  - Cardiology ward II
  - Cardiology ward III
- Binjiang Branch
  - CCU & General Ward
SAHZU Department of Cardiology Leadership

Jian’an Wang, M.D., Ph.D.
F.A.C.C.
Professor of Medicine.
Hospital President
Chair of Heart Center

Meixiang Xiang, M.D., Ph.D.
Vice Secretary of the
Hospital Party
Committee for Labor
Union and Youth
League Committee
Vice Chair of Heart Center

Xinyang Hu, M.D., Ph.D.
Vice Director of Cardiology
Director of Science and Education

Ji Ma M.D.
Vice Director of Cardiology
Director of Wards

Yong Sun, M.D.
Vice Director of Cardiology
Vice Director of Heart Intervention Center

Jun Jiang, M.D.
Vice Director of Cardiology

Ms. Mingli Yang
Director of International Affairs
Jian’an Wang, M.D., Ph.D., FACC

- President of SAHZU
- Chairman of Zhejiang Provincial Cardiology Association
- Vice-Chairman of Chinese Society of Cardiology
- Former Chairman of Zhejiang Electrocardiophysiology and Pacing Association
- Deputy Editor in Chief of Chinese Journal of Cardiology
- Specializes in Interventional, Electrophysiology, and Structural Interventions
- Recipient of the Norman Bethune Award, Second Prize of National Scientific and Technological Process
SAHZU Jiefang Campus (Main Hospital)

- 2000 Beds
- 200,000 Outpatient Visits

Catheterization Labs
- 5 labs, 1 doing EP ablations and 1 for pacemakers, 1 hybrid lab
- 24-7 STEMI receiving center
- 20+ cases a day

Entrance to Catheterization Labs with Dr. Jiang

Hybrid Lab

Dr. Fan and Dr. Wang deploying Watchman Device and subsequent ASD Closure

Dr. Yang performing periprocedural 3-D and 2-D TEE
SAHZU Jiefang Campus (Main Hospital)

Hospital Tour

Inpatient Hospital Directory

Clinical Research Institute Entrance

Cardiovascular Telemetry Floors

Pharmacy

Directions to Fever Clinic

Morning Rounds

Catheterization Labs
SAHZU Binjiang Campus

・Across Qiantang River in Hangzhou
・Built in 2013
・1000 bed hospital (SAHZU main hospital is 2000 beds)
・Outpatient and Inpatient cardiology facilities
SAHZU Binjiang Campus

- Approximately 3500 outpatient visits/day overall
- Cardiologists see 40-50 pts/HALF DAY
- Average clinic visit: 2 mins, 5 mins is considered “extended”
- Outpatient echo techs do multiple body organ systems
- 2 cath labs = 15 scheduled cases in 1 day
CVD is on the rise in China!

- Hypertension (34%)
- Smoking (29%)
- Dyslipidemia (9%)
- Diabetes (10%)
- Obesity (30%)
- Inactivity (88%)

European Heart Journal Supplements (2016) 18 (Supplement F), F2–F11 The Heart of the Matter
Cardiovascular Interventional Center

>6000 procedures yearly
Patient Volume

Outpatient Visits

Discharged Patients

Interventional procedures

Average days for inpatients
Interventional/EP Facilities

• Coronary heart disease
  • Optimized PCI: IVUS, FFR, OCT
  • Complex lesions: LM stenosing, CTO
  • Rotational atherectomy
• Catheter ablation for Tachyarrhythmia
  • CARTO & Ensite
  • Stereotaxis
• Pacemaker, ICD & CRTD
• Structural heart disease
  • Hybrid lab
  • TAVI
  • Mitral Clip
• Heart failure
• Heart and stem cell transplantation
  • Approximately 10 OHT/year
Evaluation of the safety and efficacy of transcatheter aortic valve implantation in patients with a severe stenotic bicuspid aortic valve in a Chinese population

Xian-bao LIU\textsuperscript{1}, Ju-bo JIANG\textsuperscript{1}, Qi-jing ZHOU\textsuperscript{2}, Zhao-xia PU\textsuperscript{3}, Wei HE\textsuperscript{4}, Ai-qiang DONG\textsuperscript{5}, Yan FENG\textsuperscript{1}, Jun JIANG\textsuperscript{1}, Yong SUN\textsuperscript{1}, Mei-xiang XIANG\textsuperscript{1}, Yu-xin HE\textsuperscript{1}, You-qi FAN\textsuperscript{1}, Liang DONG\textsuperscript{1}, Jian-an WANG\textsuperscript{1,11}
• 44 million Chinese are >75 years old
• 1.5 million suffer from severe aortic stenosis, and have not had effective treatment.
08/2013, first MitraClip case in Zhejiang Province
the largest center in China
left atrial appendage closure

03/2014, first left atrial appendage closure case in Zhejiang Province,

47 cases, TOP I in China
- Dr. Changling Li lecturing at the Binjiang campus hospital about patient selection and experience with the Parachute Ventricular Partitioning system (Cardiokinetix, Menlo Park, CA, soon to be Edwards?) for selected cases of LV aneurysm.

- In PARACHUTE China Trial
- 9 cases done to date, another 9-10 being screened.
Hospital Life and Clinical Experiences

- Monday to Friday, 8a-5p
- Catheterization or EP lab most of the days
- One day half day teaching rounds with residents and medical students in English
- Clinic and inpatient experience limited due to language barrier
- Attend weekly conferences, which are done in English when UCLA fellows are there
- Echo teaching
Work in the cath lab

• Very hands-on (no consenting, no reports)
• MD does not write reports, scribes do in real time
• MD cleans and drapes patient
• Diagnostic case done by one operator, second scrubs for PCI
• Up to 24 cases per day in one lab
• No sedation for patients (saves time and money, no PACU)
• Almost 100% radial (fast turn around, patients sit in recovery)
Patient + Family waiting area

Sink + Lead

600 PCIs / year require special protection
Chinese TR-Band
Case selection

• Majority of cases are diagnostic (certainty, routine f/u)
• Daily exposure to complex cases, e.g. left main intervention, bifurcation lesion, chronic total occlusion
• Not many cases go to surgery (stigmata of scar?, experience)
• Heart team approach is rare, many ad hoc high risk PCIs
ETOH Septal Ablation
• CT surgery refused patient (low EF)
• Multiple wires
• Rotational atherectomy
• Bifurcation Stenting
Left main stenting

- Multiple wires
Left main stenting

- Rotational atherectomy
• Bifurcation Stenting
Chronic total occlusions

- 64 yo M transferred from outside hospital after lysis for an acute myocardial infarction (many hospitals have no cath lab, most transfers are ground transport)
- Severe LAD stenosis
Chronic total occlusions

- CTO of RCA
- Decision was made to open RCA occlusion first, then address LAD later
Chronic total occlusions

- CTO of RCA
- Decision was made to open RCA occlusion first, then address LAD later
- Dual injection with two guide catheters, both radial access
- Anterograde approach
Chronic total occlusions

- Final result
- Patient was brought back for LAD stenting two days after
LAA Closure

- Patient undergoing LAA closure with Chinese made device similar in design to Watchman (Le Forte)
- Preprocedural and periprocedural TEE done for device deployment, transseptal done under fluoroscopic guidance (pt had known PFO)

Preprocedural Cardiac CT (128 slice Siemens Somatom Flash Scanner)

Example of periprocedural echo images (Phillips Elite)

Fluoroscopy Images of LAA occlusion
Exposure to foreign devices

Xinsorb bioabsorbable stent (poly-L-lactic acid)
(Shanghai Weite Biotechnology CO, Ltd, China)
Exposure to foreign devices

Special catheters

Drug coated balloons
Personal experience from 6 weeks in China

• 140 x diagnostic angiogram
• 45 x PCI/IVUS/OCT/POBA
• 5 x ETOH septal ablations
• 1 x LAA occlusion device
• 1 x carotid angiogram
• Echo hands-on teaching
• Teaching rounds
• Case conferences
Teaching Conferences

Patients Rounding and Evaluation
Jian’an Wang, MD PhD FACC
Health Insurance in China

- Socialized health care system with government insurance
- Mandatory health insurance
- Income based contribution
- Co-payments are a must
- PCI and CABG are expensive
- PCI with a couple of balloons and up to 2 name-brand (Boston, Abbott, Medtronic) or 3 domestic stents costs approximately 40,000 CNY ($5,799 USD) out-of-pocket
- CABG costs 100,000 CNY ($14,499 USD) out-of-pocket
- Money influences therapeutic decision making heavily (Average annual salary in China in 2017 63,000 CNY/$10,000)
- Patients’ vendetta if procedures do not work or have complications
Life outside the hospital

Westlake and View Onto Hangzhou
Hangzhou is a bustling city
Amazing FOOD!!!
High Speed train to Shanghai
If you were ever worried we have too many options in
the US…

…options for leisure time activities in China are
delicious!
UCLA Fellows at SAHZU

Stephen

Sheila

Natalia

David
Active Collaborations with UCLA

• Faculty/Fellow Exchanges
  • Cardiology
  • Orthopedics
  • Neurosurgery
  • Anesthesiology
  • Surgery
• Teleconferences
  • Cardiology (next is June 1st !!!!!!!)
  • Pathology
  • Surgery
  • Thoracic Radiology
  • Research
• Peipei Ping, Ph.D (basic science)
• Other institutions
  • Johns Hopkins, Mayo Clinic, Univ of Alberta, University of Colorado at Denver, Charite Hospital (Berlin)
Conclusion

• Working in a different health care system is an eye opening experience – I learned to appreciate things we take for granted (e.g. time with patients, EBM) and started to question others (e.g. TR-band, support devices)

• Language barrier is certainly a problem, but can be dealt with

• An opportunity like this will be very hard to come by once you are in practice

• Work feels like a vacation

• Maximum hands-on time
SAHZU is very proud of our collaboration
SAHZU is terrific – Fellows, you should all go!
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