

UCLA-SAHZU* Exchange Program

Cardiac Care in China



Philipp Wiesner, MD
Cardiology Fellow, PGY-6

*Second Affiliated Hospital of Zhejiang University School of Medicine (SAHZU)



David Geffen
School of Medicine



UCLA Health

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 杭州

- 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



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



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



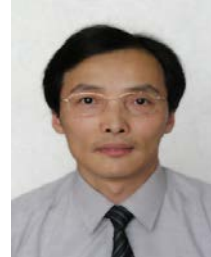
Jian'an Wang,
M.D., Ph.D.
F.A.C.C.
Professor of
Medicine.
Hospital President
Chair of Heart
Center



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.
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 Electrophysiology 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

体检中心二部		3F	
9F	心血管内科一病区	Cardiovascular I	
8F	心血管内科二病区	Cardiovascular II	CCU
7F	脑重症医学专科病区	Neuroscience ICU	
6F	手术室	Operating Room	麻醉科
5F	心血管介入中心	Cardiovascular Interventional Center	
4F	心脏大血管外科	Cardiovascular Surgery	
3F	体检中心二部	Physical Examination Center II	
2F	PET中心	浙江省医学分子影像重点实验室	神经病学实验室
1F	出院处	Admission & Discharge	收发室
-1F	物业办公室	Maintenance	
-2F	PET中心 (临床检查)	Positron Emission Tomography Imaging	

Inpatient Hospital Directory



Clinical Research Institute Entrance



Cardiovascular Telemetry Floors



Pharmacy



Directions to Fever Clinic



Morning Rounds



Catheterization Labs



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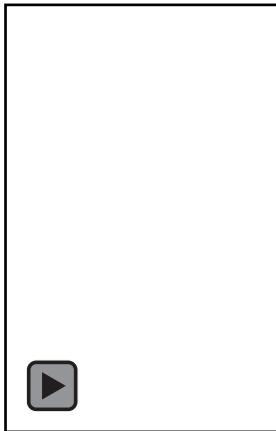
SAHZU Binjiang Campus

- 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

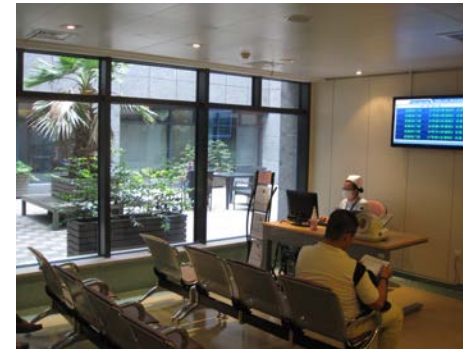
- Approximately 3500 outpatient visits/day overall
- Cardiologists see 40-50 pts/HALF DAY
- Average clinic visit: 2 mins, 5 mins is considered “extended”
- Outpatient echo techs do multiple body organ systems
- 2 cath labs = 15 scheduled cases in 1 day



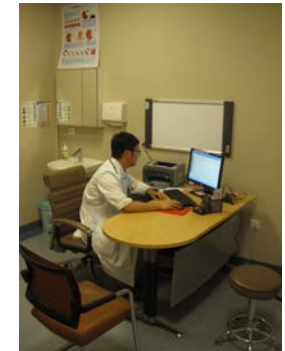
Automated outpatient pharmacy organization/retrieval of medications



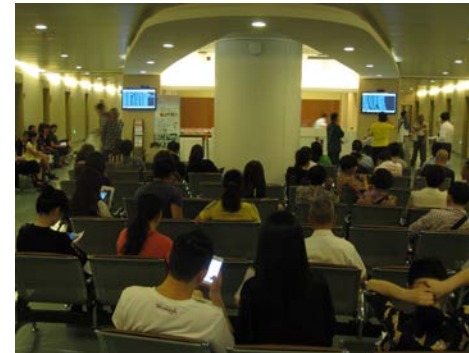
Cardiac catheterization lab and schedule for the day (right), at least 20 pts for one lab



Cardiology clinic waiting room (note outdoor smoking courtyard)



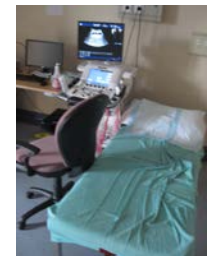
Typical Cardiology outpatient consult room



Outpatient ultrasound/ETT lab with kiosk to retrieve your official report afterwards



Outpatient echo room



CVD is on the rise in China!

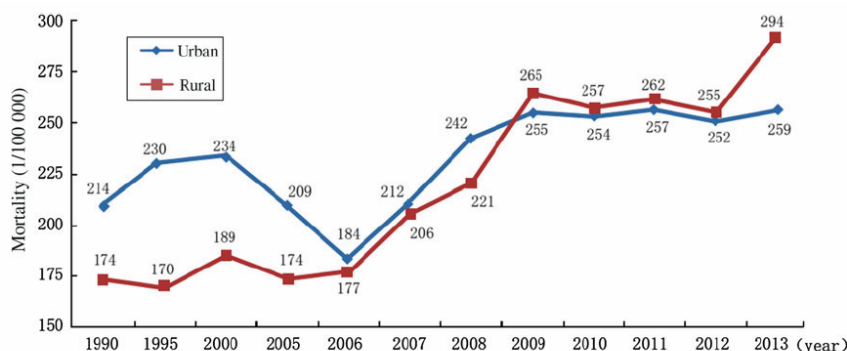


Figure 1 Mortality of cardiovascular disease in urban and rural Chinese population (China: 1990–2013).

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

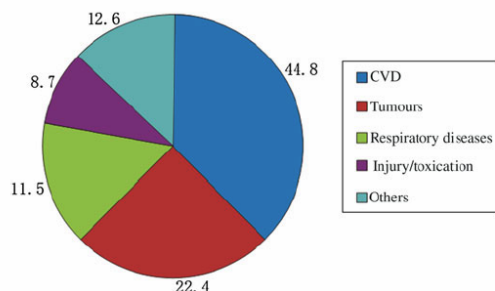


Figure 2 Major causes of death in rural population (%) (China: 2013).

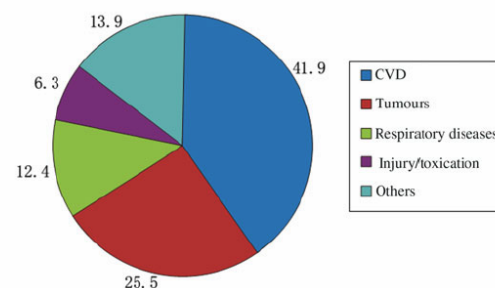


Figure 3 Major causes of death in urban population (%) (China: 2013).

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



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Cardiovascular Interventional Center

>6000 procedures yearly



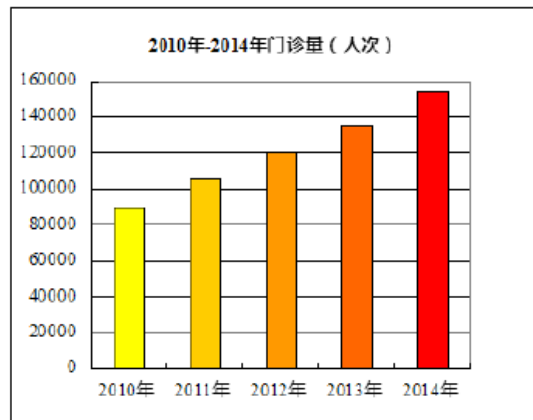
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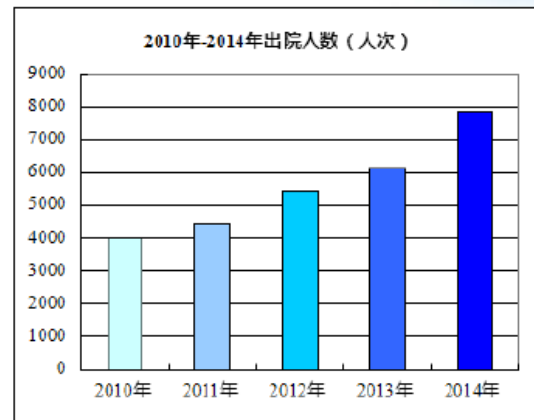
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Patient Volume

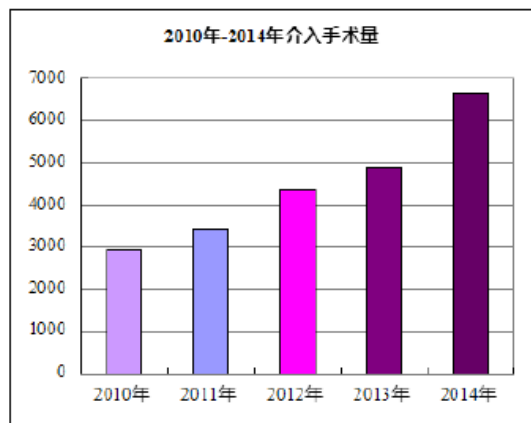
Outpatient Visits



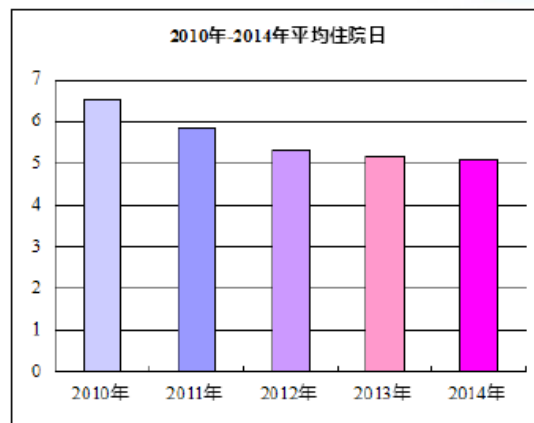
Discharged Patients



Interventional procedures

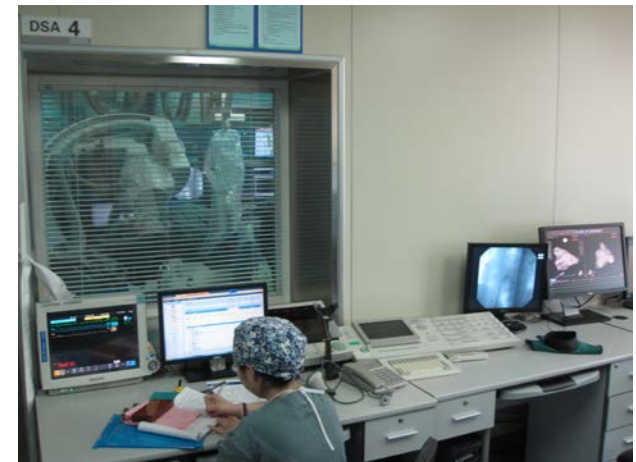


Average days for inpatients



Interventional/EP Facilities

- Coronary heart disease
 - Optimized PCI: IVUS, FFR, OCT
 - Complex lesions: LM stenting, 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





TAVR

03/2013, first TAVR case in Zhejiang Province, **67** cases now
Total cases ranks the top 3 and the largest center for bicuspid valve in China



**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 LIU¹, Ju-bo JIANG¹, Qi-jing ZHOU², Zhao-xia PU³, Wei HE⁴, Ai-qiang DONG⁵, Yan FENG¹,
Jun JIANG¹, Yong SUN¹, Mei-xiang XIANG¹, Yu-xin HE¹, You-qi FAN¹, Liang DONG¹, Jian-an WANG^{††1}



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Venus Medtech's TAVR Device Is Approved By CFDA, Creating A New Era Of Interventional Cardiology In China

English ▼

NEWS PROVIDED BY

[Venus Medtech \(Hangzhou\) Inc.](#) →

28 Apr, 2017, 09:21 ET

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- 44 million Chinese are >75 years old
- 1.5 million suffer from severe aortic stenosis, and have not had effective treatment.



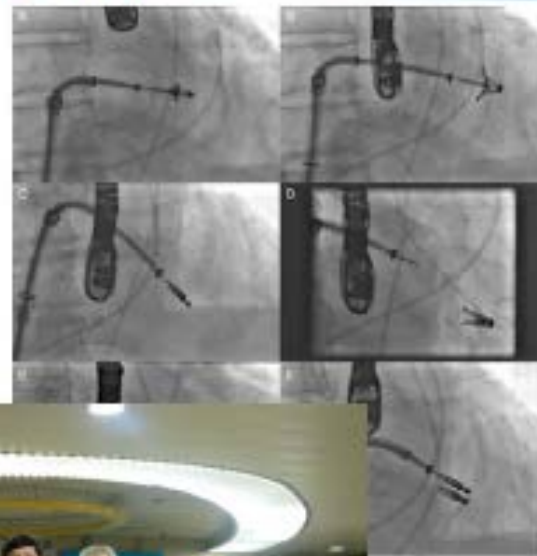
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MitraClip

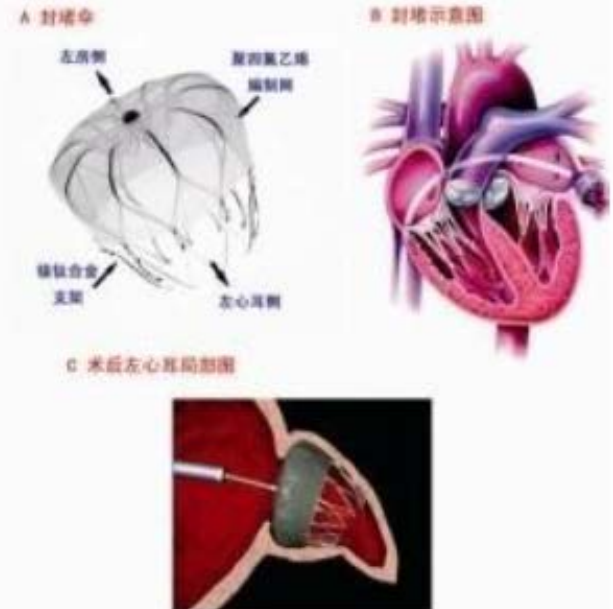
08/2013, first MitraClip case in Zhejiang Province
the largest center in China



left atrial appendage closure

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

47 cases , **TOP I** in China



左心耳封堵术示意图

- Dr. Changling Li lecturing at the about exp Pal Pal (Ca CA sel and
- In P
- 9 c 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)



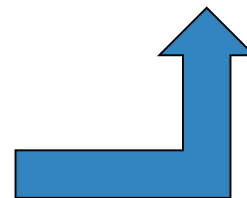


Monitor
Patient +
Family
waiting
area



Sink +
Lead

600 PCIs / year
require special
protection



Chinese TR-Band

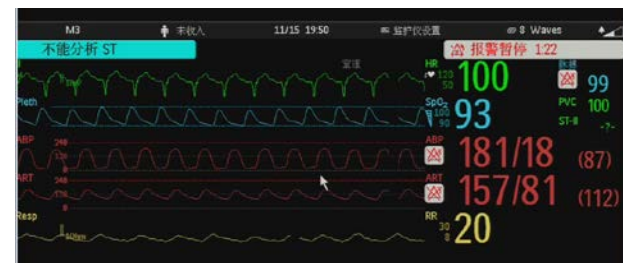
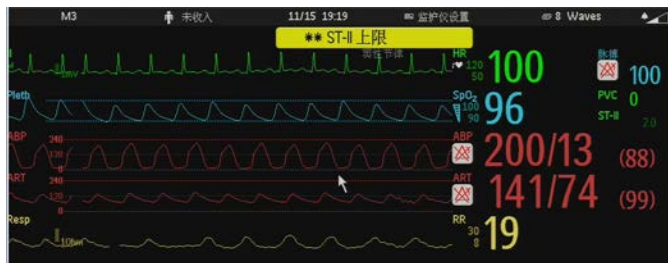


Case selection

- 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



Left main stenting

- CT surgery refused patient (low EF)
- Multiple wires
- Rotational atherectomy
- Bifurcation Stenting



Left main stenting

- Multiple wires



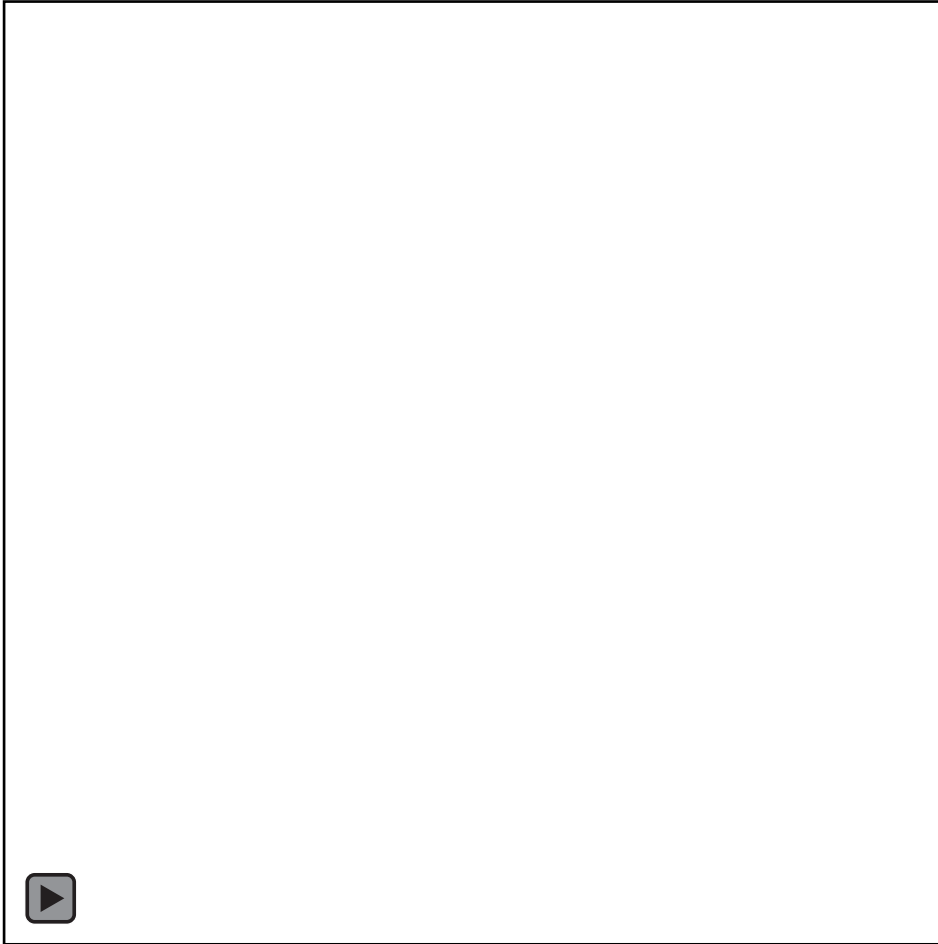
Left main stenting

- Rotational atherectomy

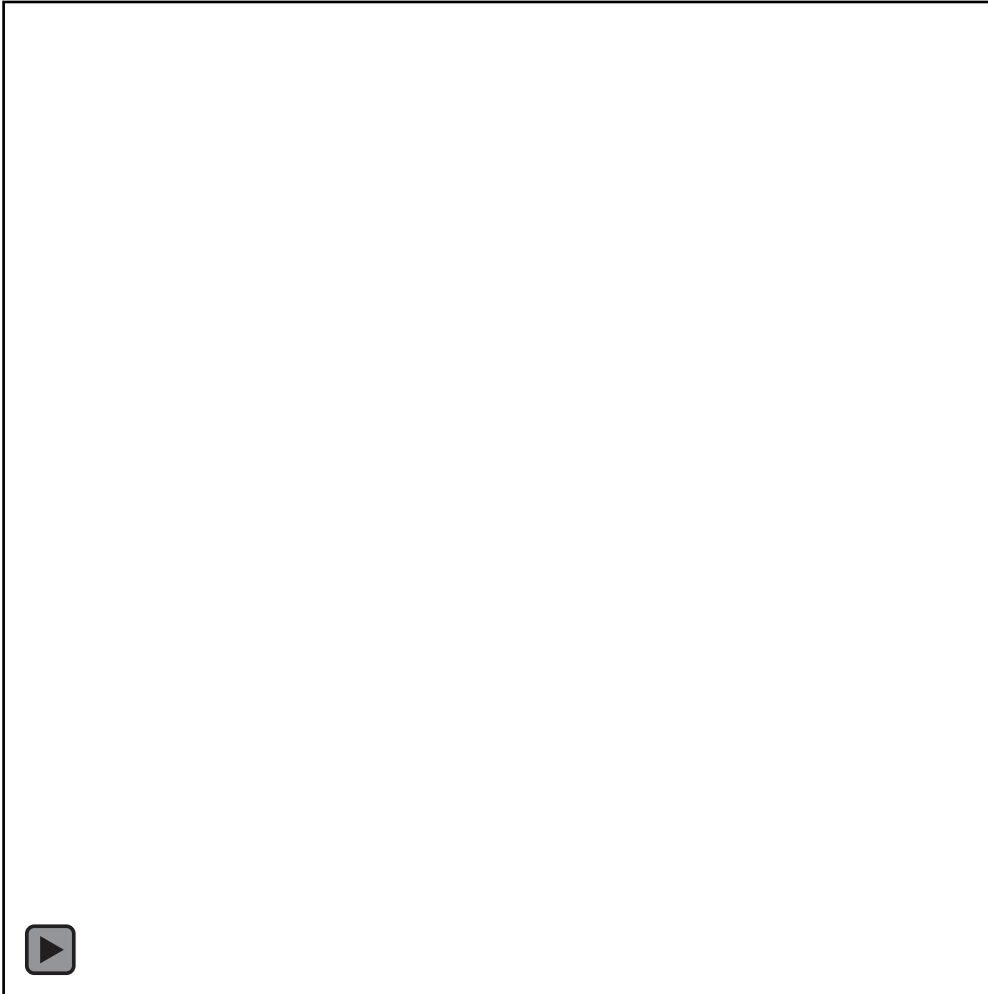


Left main stenting

- Bifurcation Stenting



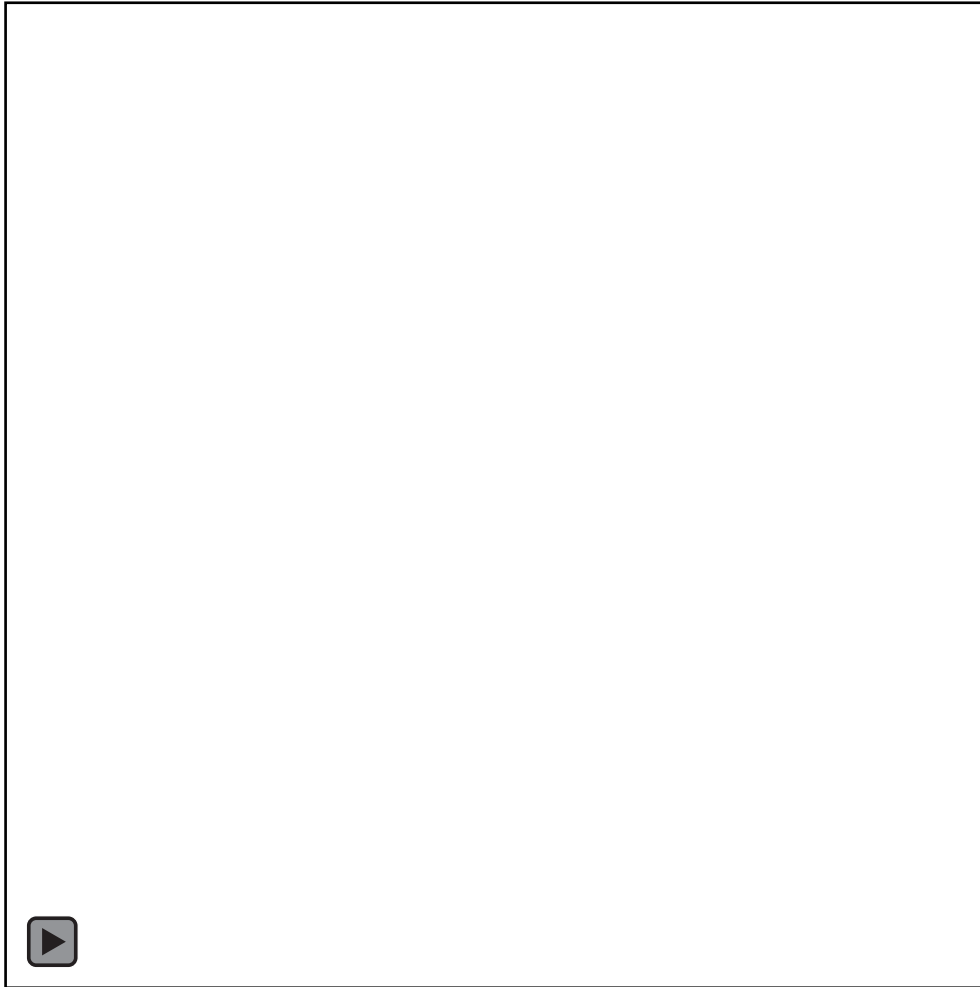
Chronic total occlusions



- 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

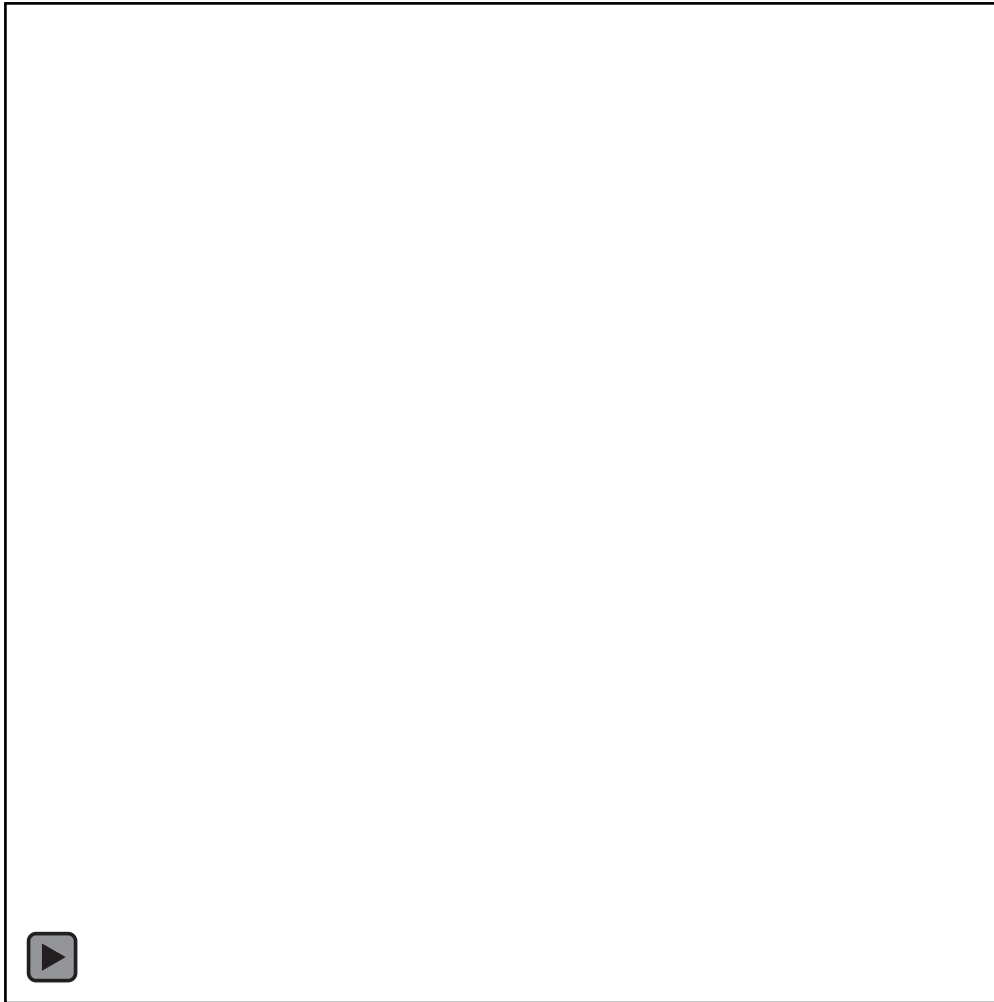


Chronic total occlusions

- 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)



Dr. Fan prepping device



Reviewing TEE images with Dr. Yang



Scrubbing in with Dr. Fan



Dr. Fan and I



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



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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 100,00 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

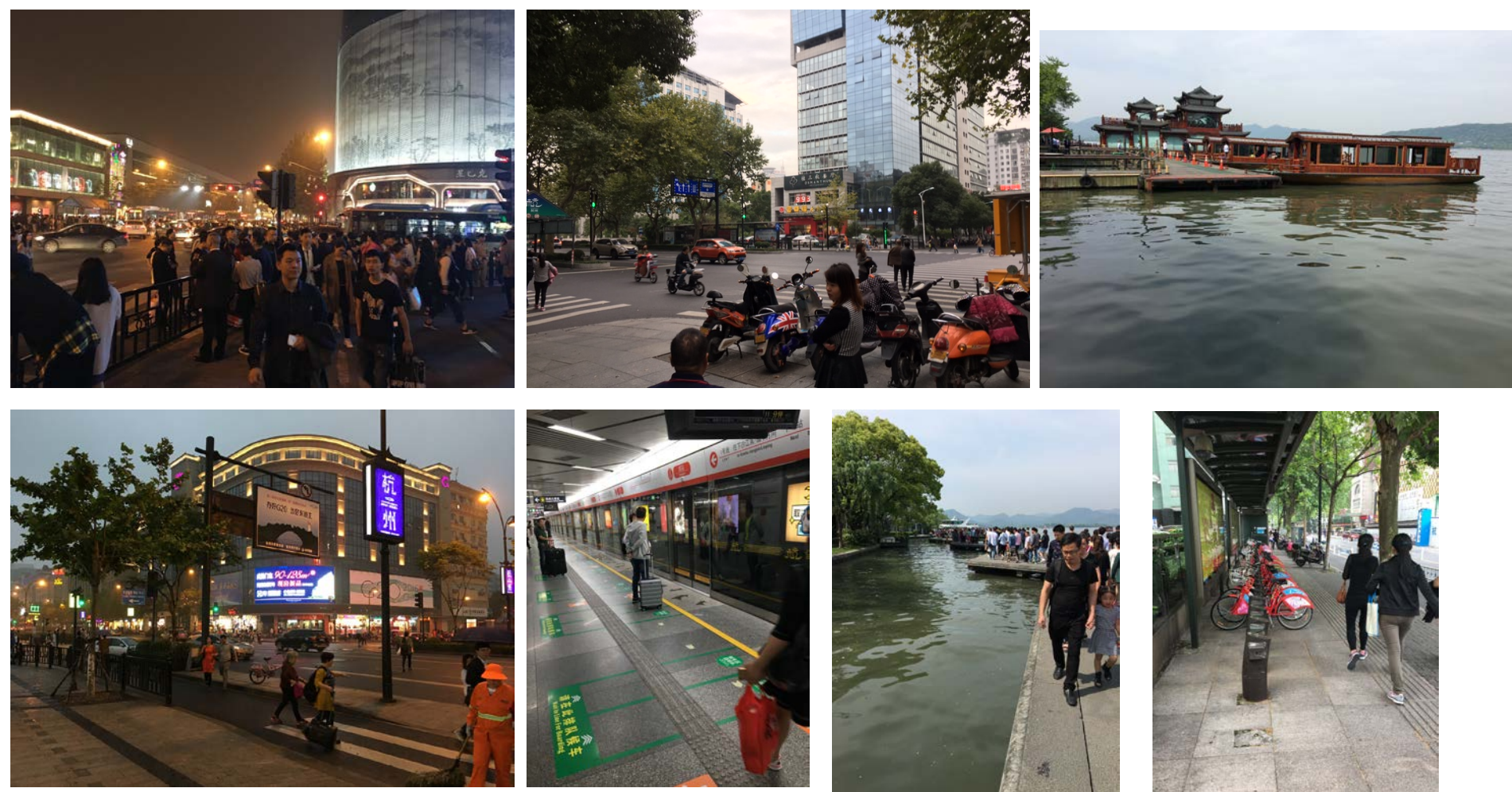


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Hangzhou is a bustling city



Amazing FOOD!!!



Yes, you can find
American food. But
there is really no
need...



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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 endless!

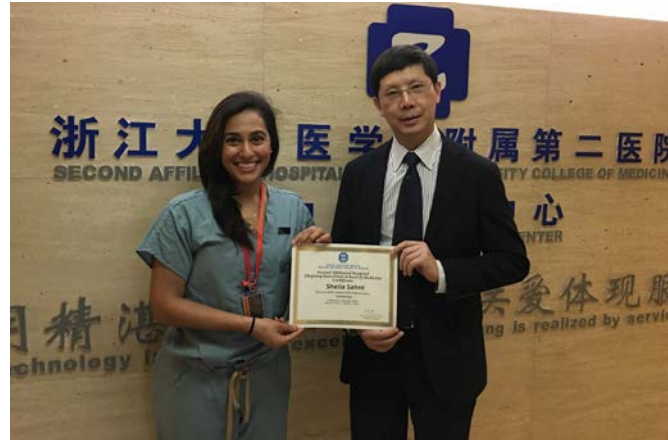


UCLA Fellows at SAHZU



Stephen

David



Sheila

Natalia



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

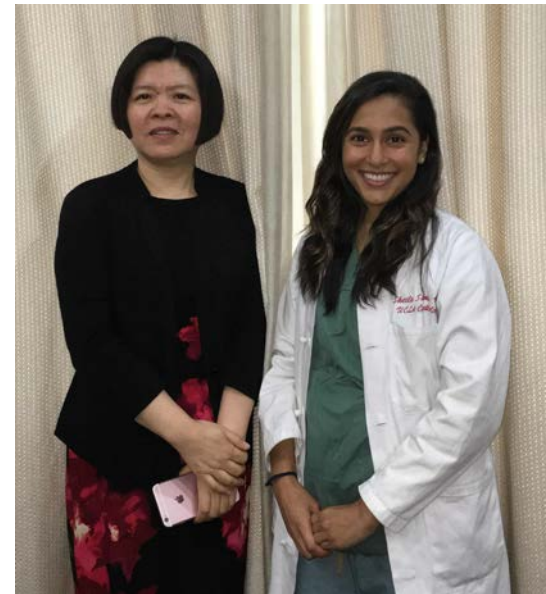


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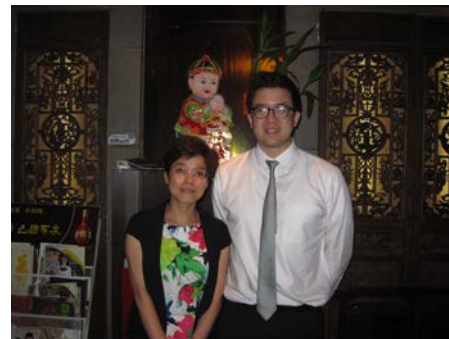
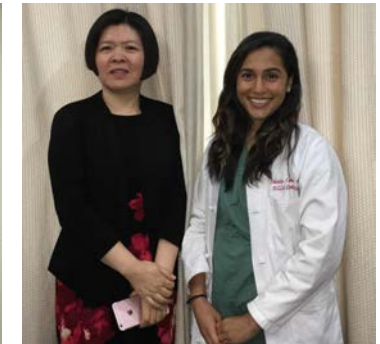
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SAHZU is terrific – Fellows, you should all go!



Special Thanks

- Karol Watson, M.D., Ph.D.
- Eric Yang, M.D.
- Jian'an Wang, M.D., Ph.D.
- Meixiang Xiang, M.D., Ph.D.
- Yong Sun, M.D.
- Jun Jiang, M.D.
- Ms. Mingli Yang
- Ms. Jing Li



謝謝您



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