

Hands across mountains: a view from Asia[†]

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INTRODUCTION

The recent inauguration of the new European Association for Cardio-Thoracic Surgery (EACTS) House in Windsor, UK by the EACTS has provided an opportunity to set the stage for a discussion about the future of the profession. As most of the leaders of this organization had trained, worked, researched, lived and/or taught on several continents throughout their career, it was clear from the very beginning, that a global view should be taken, bringing in the expertise and views from other continents. The goal of this contribution is to outline some of the challenges and opportunities in Asia.

ASIA AS A CONTINENT

Asia is the largest continent surface-wise and population-wise. Geographically, Asia spreads from the Ural eastwards to Siberia and includes in the south some heavyweights like India, China and Japan. However, there are in total 48 nations with uncountable regional differences (e.g. Singapore vs Mongolia) and there is unmatched diversity in populations, languages, traditions, religions, etc. Indonesia alone has >17 500 islands. This to state that there cannot only be enormous distances in-between Asian regions, but communication can be complicated and even more so transportation for the healthy, not to think about the sick. Although first-class health service including cardio-thoracic and vascular surgery at the highest level is available in the leading Asian cities, this is certainly less the case in remote areas. Considering the communication and transportation challenges outlined above, there is in fact today marked diversity in Asia not only with regard to culture, but even more so with regard to medical culture, i.e. service level, service availability, access to service and, of course, cost of service.

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CARDIO-THORACIC AND CARDIO-VASCULAR SURGERY IN ASIA

More specifically, the regional differences in thoracic and cardio-vascular surgery in Asia may be even more pronounced than on other continents. Not only are there areas in Asia with expertise and facilities equal to anywhere in the world, but many centres perform 6000–10 000 cardiac surgeries in a year. Furthermore, rapid growth of cardiac surgery has been witnessed over the past 10 years in countries such as Vietnam and Bangladesh. On the other hand, some countries have no cardiac surgery or are just building facilities and training personnel. In many places, allocation of resources is focussed on major cities. Less is spent on second and third tier cities, although typically these cities still have millions of population deserving cardio-thoracic care.

An additional concern is the limitations in training for some places. Problems exist in supervision, small volumes in smaller hospitals, lack of certification, inadequate basic science foundation, poor medical school standard, poor command of English, inability to publish significant work, lack of system of supervision and review of trainees, no outcome assessment and insufficient platform for continued professional development. Other issues are professionalism and ethics. As a matter of fact, commercialization of the practice of cardiac surgery is associated with reduced patient's trust. Sometimes patient's interest is not paramount. Movement of surgeons into private practice reduces the mentors and teachers in training institutions.

A different issue in Asia is the not uncommon focus on 'high-tech' surgery with unproven longer-term outcomes. In most parts of Asia, it would be conventional surgery that can deliver the results patients expects. Excessive interest in early-stage high-tech surgery may not be beneficial to most patients, be it only cost wise, limiting its potential benefits to very few patients. Thorough analysis of this and other issues is further complicated by the absence of adequate databases that allow for the assessment of early and longer-term outcomes with the required readjustments for optimized patient care.

The extreme discrepancies from one Asian region to another are also reflected in long periods of training under less than ideal

circumstances, and inadequate pay for many surgeons and trainees. As a result, training in cardiac surgery has become an unpopular choice in several parts of Asia. However, in other regions of Asia, cardiac surgeons are well remunerated and have satisfying careers.

ASIA'S OPPORTUNITIES FOR THORACIC AND CARDIO-VASCULAR SURGERY

Most parts of Asia have a growing ageing population with increasing resources and growing awareness of health issues. Hence, there is an increasing demand for cardiac and other surgeries in many parts of Asia. One key issue is, however, how can the specialty of thoracic and cardio-vascular surgery provide top-quality surgery to care for the large numbers of patients.

Considering the enormous potential, the 21st century may well be an Asian century. But 'Asia' is not a single entity. It is a vast continent of diversity, of widely contrasting countries and regions in varying stages of development. Although economic and social progress in Asia is well documented, its distribution is extremely scattered. The percentage share of world gross domestic product of developing countries has already equalled that of the developed nations. Asia accounts for the majority of the overall growth. Asian countries have by now 60% of the world's population, and an ever increasing cardio-vascular disease 'burden'. It has been estimated that India has currently 60% of world's heart disease burden [1]. Many Asian countries have rapidly ageing populations (China, Japan and Singapore) and will likely have increasing incidence and prevalence of complex cardiac diseases. China already has >200 million people above age of 65 years [2] and 60–70% of males are smokers [3]. Coronary heart disease is rapidly increasing in China. An ageing population by itself will increase cardio-vascular events in China by 50% from 2010 to 2030 [4]. Increasing wealth implies increased affordability and accessibility to cardiac surgery. How much the actual increase in thoracic and cardio-vascular surgery will be is uncertain. Projections are often inaccurate and even more so in Asia.

As indicated above, a major issue is how to cope with the expected increasing need for cardiac surgery. In India, the estimated number of patients requiring cardiac surgery is at least 8 million. Coronary artery disease in India was estimated to affect 30 million patients [5, 6], whereas the current volume of cardiac surgery is about 120 000 a year. If we assume 10% of potential coronary surgery patients can actually afford surgery (800 000 patients), there is already a mismatch between demand and current facilities and manpower.

A similar situation exists in China. Assuming there is a sufficient economic development to provide for the healthcare needs of the population, do we have the mechanism to provide high-quality cardiac surgery over the next two decades in Asia? Taking into context, the long lag time needed to train independent cardiac surgeons and teams, training certainly is a major issue.

There is also a bright side. The continent of Asia is full of capable, smart, hungry and hard-working people, increasingly better trained, resourced and organized. The support structures are improving. We are witnessing the phenomenon of excellent surgeons and researchers moving to Asia from the west, in a 'reverse brain drain'. This trend is welcomed in many Asian countries. It certainly helps to speed up the development of the specialty. As a matter of fact, there is already a substantial contribution from Asia to the publications in the European Journal of Cardio-Thoracic Surgery considering that for the first issue

of 2012 immediately prior to our meeting at EACTS House, 15 of the 59 (25%) contributions originate from Asia (Table 1).

THE ACADEMY OF THE ASIAN SOCIETY FOR CARDIO-VASCULAR AND THORACIC SURGERY

As a fraternity of cardiac surgeons, we can be part of a movement to produce the best possible surgeons and surgical teams, all across Asia. We will benefit millions of patients.

The Academy of the Asian Society for Cardio-Vascular and Thoracic Surgery (ASCVTS) had recently been established. The aim is to help educate and train cardio-thoracic surgeons, provide avenues for professional development, develop cognitive capacities and enhance the specialty of cardio-thoracic surgery. Seminars and workshops are to be conducted, using interactive discussions, box trainers, 3D printing, training models, wet and dry labs as adjuncts. Simulation will be a key modality. It is an excellent platform for training in cardiac procedures such as transcatheter aortic valve implantation, extracorporeal membrane oxygenation, extracorporeal circulation, minimally invasive thoracoscopic assisted mitral surgery and robotics. Efforts are underway to develop open surgery simulation trainer using a Robotic Glove linked to gaming systems.

There already are such existing teaching facilities in Singapore (Figure 1), Beijing, Hong Kong and Japan for the purposes of the ASCVTS Academy, including simulation centres, animal labs, modern training aids, wet and dry labs. More sites in other countries will be recruited and developed. Teaching expeditions to developing regions of Asia are planned.

Longer-term targets are the formulation of Asian risk scores, guidelines, multicentre trials, curriculum development and certification.

Our motto is: 'Think big, start small, and move fast'. The academy is expected to be a major driver of education and training in Asia, supplementing the yearly congresses of the ASCVTS.

WHAT CAN EACTS DO?

The EACTS is a successful organization with a proven track record that can rely on a vast pool of people of first-class intellect with unique experience of coordinating a diverse continent of surgeons into working for common good. The experience gained is invaluable. EACTS can be a major partner of ASCVTS in developing excellence in Asia. In many situations, Asia does not need to reinvent the wheel. We can learn from our friends in Europe, if EACTS can extend 'hands across mountains'.

Although the basic principles of training are universal, not everything that worked in the west can be transposed in entirety to all regions of Asia. Modifications and awareness of cultural sensitivities would be necessary.

WHAT CAN ASIA CONTRIBUTE?

Ability to innovate is not confined to developed countries. There is abundance of talents within Asia's thoracic and cardio-vascular, scientific and engineering communities.

The quantum of funding for research and medical technology development has significantly increased. The infrastructure for innovation is becoming well organized. There is abundance of

Table 1: Publications originating from Asia in the first issue 2012 of the European Journal of Cardio-Thoracic Surgery (volume 41, issue 1, 2012): 15 of the 59 contributions or 25%

References	First author	Domain	City	Country
[7]	Esme <i>et al.</i>	Thoracic	Konya	Turkey
[8]	Matsuguma <i>et al.</i>	Thoracic	Utsunomiya	Japan
[9]	Okamoto <i>et al.</i>	Thoracic	Chiba	Japan
[10]	Park <i>et al.</i>	Thoracic	Seoul	Korea
[11]	Li <i>et al.</i>	Adult cardiac	Shanghai	China
[12]	Marui <i>et al.</i>	Adult cardiac	Kyoto	Japan
[13]	Kinoshita <i>et al.</i>	Adult cardiac	Otsu	Japan
[14]	Wang <i>et al.</i>	Adult cardiac	Tianjin	China
[15]	Chen <i>et al.</i>	Adult cardiac	Fouzhou	China
[16]	Xiong <i>et al.</i>	Basic Science	Guanzhou	China
[17]	Kimura <i>et al.</i>	Case report	Tokyo	Japan
[18]	Yurekli <i>et al.</i>	Letter to the editor	Izmir	Turkey
[19]	Jiwani <i>et al.</i>	Letter to the editor	Mumbai	India
[20]	Kestelli <i>et al.</i>	Letter to the editor	Izmir	Turkey
[21]	Kim <i>et al.</i>	Letter to the editor	Seoul	South Korea



Figure 1: A view of the state of the art training facility in Singapore organized by the Academy of the ASCVTS.

energetic engineers and scientists in institutions keen to be our collaborators. More and more Asian universities and medical schools are ranked among the top in the world. Major medical industry companies are incentivized to set up research and development centres in Asia. The regulatory environment for innovation and clinical trials can be less stifling than many places in the west.

There is large number of patients in many countries. In time to come, Asia may lead in developing the cutting edge for thoracic and cardio-vascular surgery.

CONCLUSION

There is a great need for thoracic and cardio-vascular surgery in Asia in the 21st century. Asian thoracic and cardio-vascular

surgery will grow, but may not be able to meet with the demands on the volume requirement with the requisite quality. We as a fraternity across the world should work together to help provide the best possible care to billions of people in Asia.

Two poems, one from the west, one from the east, express Asia's intention.

Come, my friends. Sail, beyond the sunset.
To Strive, to Seek, To Find and not to Yield

–Alfred Lord Tennyson, 'Ulysses'

You are an eagle.

You have skies stretching out before you.

Do not let mere day and night ensnare you

–Muhammad Iqbal, 'Tulips in the Desert'

We in our limited lifetime, operating on 1 patient at a time, can only benefit a few thousand patients. If we do our part in training, research, innovation and in developing the infrastructure of thoracic and cardio-vascular surgery, we will certainly benefit a larger number of patients, for many years to come. We have a higher calling than merely performing surgery.

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