

EDITORIAL

In the Age of Globalisation Can Asia Equal Europe and North America in Orthopaedic Research and Education

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In this day and age there is a growing interdependency of countries worldwide through the increase volume and variety of cross boundary transactions in goods and services and the diffusion and osmosis of all kinds of technologies. Alexander Pope's reminder that no man is an island rings more true today than any other time in history before us.

Not so far ago, United Kingdom was undoubtedly at the epicenter of Orthopaedics – the great names Charnley, Freeman, McKee, Farrar, Bristow, Ring, to name a few, were practicing and trainees from all over the world, specially from Asia were making a beeline to the famous hospitals and research institutions of Great Britain as the training facilities in their own countries were few and not of the highest standard.

Unfortunately this is no longer the case, as the European Union rules make it more difficult or impossible for the young orthopaedic surgeons from Asian countries to train and work in the UK.

ORTHOPAEDIC TRAINING

Fortunately the loss of Great Britain as a training ground did not have a serious consequences as many Asian countries have developed their own training schemes of high quality in the last fifty years.

It's not a matter of East versus West as we are now truly East-West Global Citizens. We need each other. Being Global Citizen brings huge benefits and responsibilities to respond to the many challenges in our region Orthopaedic surgeons have a lot of good work to be done. It is in the area of innovation we must excel. Innovation is the lifeblood of any economy and of all health services.

GLOBAL CITIZEN

Most Asian countries have progressed by sending their best and brightest scientists and doctors to the West for training

and education. When these individuals came back to their home nations, they were able to grow and develop organically, to reach the standards of Europe and North America. Good examples are Japan and South Korea, who showed determination and vision to reach their goals.

The recent Global and World Competitiveness Index Scoreboard shows an increasing percentage of Asia Pacific Countries in the top 30. The BRIC (Brazil, Russia, India and China) countries are poised to overtake the USA and the EU in terms of their combined GDP in 2010. That's just next year. However, as their populations are vast, FDP per head will still be a fraction of their counterparts in Europe and USA. Nevertheless, this is a key milestone in their development.

With change comes opportunity for those who seize the initiative. Today Japan, Korea, Australia, Taiwan, Hong Kong, India, China and Singapore play a pivotal role in the global economy. With this increased wealth, Asian countries will be able to attract the best and brightest from Europe and North America to teach at their local institutions. Thus search for talent will be more globalized. The researchers and surgeons of the future will increasingly be able to travel to countries which reward them This is already happening in Singapore, for example.

Research and Development expenditure in Asia Pacific region has increased in leaps and bounds in recent years. The number of researchers have also increased tremendously in the region. There is a huge space for research as nearly two thirds of the world population lives in Asia Pacific region.

However there is still a huge difference in the economic standards of the developed and developing countries. Countries like Australia and Japan have high standards of care for orthopaedic patients but developing countries like Myanmar and Bangladesh are not yet able to provide that. Until recently, the emphasis in the developing countries of Asia has been to provide care rather than research.

The standard of care is based on Western medicine. The technology is western and largely driven by multinational companies from Europe and North America. There are few large local or home grown Asian companies who can provide high standards of surgical implements, implants and facilities.

Publication of research worldwide is largely controlled by publishing houses and universities in Europe and North America. It is a little easier for a European Publication to be indexed compared to an Asian one, although this is changing. Impact factors are determined by Thomson ISI which is a western publishing house.

If we now look at some specific examples closer to us most of us read the JBJS regularly. JBJS is read by English understanding orthopaedic surgeon all over Asia- Pacific countries. Over the last 30 years, the share of papers in JBJS from Japan and Korea (the developed Asian economies) has increased. Europeans have doubled their contributions. But the contributions from the developing countries in Asia have stayed the same at around 10%. In 1978, South Korea was a developing nation and had no papers in JBJS. Last year their surgeon had contributed 5% of the papers in this peer reviewed journal. Looking at the further breakdown of the "Asian" Contributors in 1978 and 2008 respectively, you can see the increased participation in China, Hong Kong, Singapore and Taiwan. It appears that as a country develops and wealth grows so does its research output.

Hope comes in the form of increased wealth in the region and with this will come greater demands for local research and publications more tailored to the Asian situations.

MALAYSIAN TRENDS

Now I would like to discuss Malaysia as an example. The monetary contribution for research and development in various sectors has increased over the years. The public and private sectors have contributed their fair share in this increase.

In 1957 when Malaysia obtained independence from Great Britain, there was only one Orthopaedic surgeon – Dr Majid Ismail. In 2009 there are about 450 orthopaedic surgeons entirely trained locally. During the subsequent subspecialty training, the trainees may go overseas for training. In 1957, there was only 1 university for Malaysia and Singapore combined. Today in Malaysia there are 9 government aided medical schools and about 14 private medical institutions and still growing.

Europe has one orthopaedic surgeon per 15,000 population, United Kingdom has one orthopaedic surgeon per 28,000

population and Malaysia has one orthopaedic surgeon per 60,000 population. As you can see there is still a relative shortage of Orthopaedic Consultants in Malaysia at present time.

TRAINING

Before 1992 – only route to Trauma and Orthopaedic Surgery was 'old style' FRCS exam and training/apprenticeship in Malaysia or UK. The UK Royal Colleges started to phase out the 'old style' FRCS and introduced the Calman System and new FRCS (Tr & Orth). Since 1992, Malaysia has established a local training programme leading to the award of a Masters Degree in Trauma and Orthopaedic Surgery. The training for the residents is provided in 3 Malaysian Universities and associated Government Hospitals. Most residents have experience of a large volume of trauma but less elective procedures like arthroplasty, for example, when compared to Europe and North America.

In University of Malaya, Department of Orthopaedic Surgery there are 20 Orthopaedic Surgeons, 12 Research Assistants, 8 Research Students and 13 x 4 = 54 Orthopaedic Residents. And that is only one training centre. Since 2004, the 3 universities have a combined Exit Exam. 30-40 Orthopaedic Surgeons are produced a year. The Annual Government Grant for research for orthopaedics in 2008 was US\$450,000 and Non-Government Grant in 2008 was US\$350,000.

INTERNET

Another opportunity is the internet.

YouTube, Google and Wikipedia, built by individuals (not institutions or governments) have provided more education to more people, since their beginnings early this decade, just a few years ago, than all the great universities of the last 500 years.

YouTube with one billion views per day a fraction of which is educational but still significant.

These types of transformation technologies will engender a paradigm shift in the way in which developing nations acquire and use information and may leapfrog traditional methods. Orthopaedic trainees in developing countries now have less reliance on traditional texts in the advent of on-line resources. JBJS is online as is VJO and numerous other multimedia resources. Testing on line in the form of MCQs aids recall and improves the knowledge base. The amount of knowledge absorbed though can only be tested by the traditional viva exam.

TRAVELLING FELLOWSHIPS

Another opportunity to learn and develop in this region are the Fellowships that have been started by Regional Orthopaedic Societies like the Asia Pacific Orthopaedic Society. Recognizing that people in this region have unique orthopaedic problems was the first step towards the creation of Regional Fellowships to centers of excellence. This allowed the exchange of knowledge, techniques and skills required to excel in this the Asia Pacific region.

RESEARCH FOUNDATIONS

As we have seen with the Department Of Justice investigations in the United States there has to be a method that governments see to be fair to distribute research and educational grants from the industry. Some Asian countries like Singapore and Malaysia have already set up charitable foundations for this purpose. However for Asia to equal Europe and North America in Orthopaedic research and education the following must take place :-

1. Investment by the Governments
2. Sponsorship by large corporations
3. Training of Asian surgeons in Western countries and regional centres of excellence

4. Exchange and cooperation of Orthopaedic academician between Asia, Europe and North America
5. Communication and travel opportunities in Asia
6. Economic and language barriers should be overcome.

CONCLUSION

1. Eradication of poverty and wealth creation result in improved research, education and patient care.
2. As Asian countries develop so will their research and training efforts (eg. Japan).
3. The internet has provided a huge boost to the efforts of developing countries.
4. Certain orthopaedic problems unique to this region are best addressed with local expertise.
5. It is in the area of Innovation that we must excel.

Can Asia Equal Europe and North America in Orthopaedic Research and Education?

The answer is YES we can