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Should orthopaedics be globalised?

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Orthopaedics only became a distinct specialty within the whole field of medicine about 50 years ago. Before that time, it was still a part of general surgery. For example, in the Faculty of Medicine of the University of Hong Kong, although the Faculty was incorporated in 1911, the Department of Orthopaedic Surgery was established only as recently as 1961. In North America, there are presently still divisions of orthopaedic surgery within another department, including the one at Stanford University.

Worldwide, there have been significant changes in the pattern of musculoskeletal diseases. Where there was an abundance of infection of bone and joint, congenital deformities, and industrial injuries, these have given way to road traffic accidents, spinal deformities, sports injuries and degenerative joint diseases. Recently, there has been a marked increase in degenerative spinal and joint diseases because of an aging population, and this trend will be more pronounced in the foreseeable future. One has also witnessed treatment techniques being driven by high technology, including the introduction of minimally invasive surgery, computer-guided surgery and extensive use of biomaterials.

Because orthopaedics started off on a rather empirical basis, rapid advances have occurred within the past four to five decades. Advances in anaesthesia and development of surgical approaches fuelled such advances. More recently, research in biomechanics, biomaterials, electrophysiology, molecular biology and genetics has added greater momentum to such advances. From the patient's point of view, there is an increasing demand for preservation and enhancement of locomotor function and quality of life. From the

point of view of provision of medical care, an aging population, longer life expectancy, increasing incidence of trauma and expectation of high quality of life have resulted in an increasing consumer demand on musculoskeletal medicine. On the other hand, the explosion of medical knowledge and technology has necessitated medical doctors, including orthopaedic surgeons, to keep abreast of what is happening worldwide to be able to deliver a good-quality service as well as to satisfy patient expectations.

Globalisation in orthopaedics is therefore necessary. The ideal globalisation scenario should be where advances in techniques, technology and surgical implants are dispatched to the orthopaedic surgeons of the entire world. Figure 1 depicts such a situation where orthopaedic advancements gained from experience or, better still, from evidence-based evaluation, have a two-way flow between orthopaedic surgeons in all continents of the world. In reality, the situation is as depicted in Fig. 2 where orthopaedic advancements in the developed countries (in North America, Europe, Australasia and Asia) are in a one-way flow to the developing countries and the Third World.

Ideal globalisation should include the following:

1. Minimum standard of education and training
2. Common or similar assessment methods of outcome of training
3. Mutual recognition of certified minimum standard of training
4. Recognition of ethical standards.

It should also lead to sharing of (1) training opportunities, (2) a database of clinical materials for research, (3) educational materials and (4) approach to management of different diseases.

There are factors that favour globalisation, including affordable information technology and the need to update knowledge continually and rapidly because of the knowledge explosion. Many factors, however, impede globalisation. These factors include the facts that advances in techniques and technology occur mainly in developed countries, that application of advances requires substantial front-end fund-

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Fig. 1

ing for equipment, that large recurrent budgets are required for implants, the requirement for a lengthy period of training; that advances are of little relevance to the situation in developing countries and that protective territorial barriers by healthcare professionals and governments prevent thorough cross-fertilization.

There is presently a dominance of American points of view and practices in orthopaedic surgery. The annual meetings of the American Academy of Orthopaedic Surgeons (AAOS) have the largest number of participants and the largest percentage of foreign participants. Of the top 20 orthopaedic journals with the highest impact factors, 17 are American based. The AAOS has the most so-

phisticated Web site. The orthopaedic hyperguide, supported by Stryker, is an excellent educational tool, but unfortunately the opinions and viewpoints in it are only North American ones. Although in theory the dissemination and enhancement of orthopaedic knowledge is desirable, American orthopaedics has a greater tendency to be industry and market driven, there is a much higher volume of operative surgery in America versus other developed countries and use of expensive implants and devices is unrealistic and often necessary for other countries.

Coming back to the question of developed countries helping developing countries: there are at present such institutions as World Orthopaedic Concern, Orthopaedic

Fig. 2

Overseas, and many individual efforts to do so. Such help is useful and needed but often fragmentary. Good organization of such help is required to achieve maximum impact. The ideal would be a world organization to initiate, coordinate, and stimulate participation, resulting in raising opportunities for trainees; agreement to minimum standards, contents and assessment methods of programs; increased education opportunities and availability of educational materials and provision of clinical consultation services. Unfortunately, such an organization cannot be formed by governments for political reasons, funding issues and the existence of protective barriers.

SICOT is the only truly global non-governmental orthopaedic organization that attempts to facilitate globalisation in orthopaedics. It has a membership of 105 nations, and its globalisation initiatives include the following:

1. SICOT Web site: This contains a membership roster and provides online application for membership, conference registration, abstract submission etc.
2. SICOT world portal: This is sponsored by Pfizer. It is an excellent forum for sharing academic issues and education materials as well as providing a link to other orthopaedic and non-orthopaedic societies. It contains SICOT special lectures given by world experts. It also provides discussion boards for interaction.
3. SICOT telediagnostic Web site: Files containing full clinical information of patients (including medical history, clinical photographs, investigation results and imaging results) are sent from a centre requiring a medical opinion or surgical decision to another centre for clinical consultation. SICOT provides the hardware and software. Eighteen centres in as many countries are involved (Fig. 3). Figure 4 shows the usage summary in 1 year.
4. SICOT diploma examination: This is a first attempt to provide an assessment for minimal competence for orthopaedic surgeons in a global prospective. It consists of a written part of 2 h with 200 MCQ based on the hyperguide and an oral part of 2 h based on the examination format and standard of the Royal Colleges of Surgeons of UK and Ireland. The oral part examines candidates in five major subjects, i.e. adult orthopaedics and pathology, trauma, children, hand surgery and basic sciences. This examination was first started in Cairo, Egypt, in 2003.
5. SICOT training manual: This is a guide to basic orthopaedic training and education based on the Canadian model. It sets standards for a trainee to achieve, assures an acceptable level of knowledge and informs examiners what a candidate should know at the end of training. It also requires regional and local knowledge of endemic diseases.
6. SICOT Annual International Conferences: A small number of themes are included in the scientific content, including diseases relevant to that part of the world where the conference is held. Because of its regional nature, it can reach all the developing parts of the world.
7. SICOT Triennial Congresses: These are truly international meetings, with balanced views of results of treatment from many countries. They combine cutting-edge research with more practical treatment initiatives.

The question should be asked whether SICOT is doing a good job to facilitate globalisation. SICOT itself does not believe that it is doing a completely satisfactory job. There is a lack of financial resources because its income is dependent on membership subscription and industry support. There is a lack of human resources because orthopaedic

Fig. 3

Fig. 4

surgeons in many countries look to their own societies and specialized societies rather than having a global vision. The Board of Directors and National Delegates are very committed, but they themselves have full-time jobs and are very busy. There are other initiatives and contributors, including Bone and Joint Decade, World Orthopaedic Concern and International Council on Education. They certainly play an important, albeit limited, role in globalisation.

To some people, globalisation can only be a dream. To others, it is a vision. It would be unrealistic to expect globalisation to occur easily and within a short period of time. Nevertheless, continued efforts should be mounted to achieve this vision. Figure 5 is a diagrammatic representation of what sort of framework can contribute to the success of this vision. If orthopaedic surgeons are willing to shed their parochialism and be prepared to play a part on the world stage, then globalisation may one day be achievable.

Fig. 5