Paediatric Orthopaedic Education and Training in ASEAN

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Orthopaedics – popular specialty

- Highly sought after residency training program in many parts of the world
- Very practical and hands-on
- Clear outcomes
- Many of the subspecialties are financially rewarding (e.g. spine, sports and adult reconstruction)
Paediatric Orthopaedics

- First “subspecialty” in Orthopaedics – often the favourite of the leaders in orthopaedics
- Very challenging especially in the developing world
- Needs skill, dedication and commitment to managing children (and parents!)
- Not lucrative but can be fulfilling – appeals to a different type of personality?
Paediatric Orthopaedics

In the developing world:

- Many neglected and poorly treated congenital deformities
- Poorly managed fractures and dislocations
- Significant impact on the child’s future function and livelihood
- Need well-trained orthopaedic surgeons who can manage these problems well
Problems in the Developing World

- Severe deformities
  - Congenital: e.g. clubfoot, scoliosis
  - Acquired: post-polio deformities

- Infections
  - Pyogenic infections: e.g. osteomyelitis, septic arthritis
  - TB: spine and joints
Spinal TB
St Andrew’s Hospital, Siglap
Anterior decompression and fusion
Paediatric Orthopaedic training

- Paediatric orthopaedics is not just treating “small adults”
- Strong foundation in general orthopaedics
- Rotation through a paediatric orthopaedic centre as a resident + clinical fellowship
- A large amount of non-operative management skills is required (e.g. casting and the use of traction)
Paediatric Orthopaedic training

- Different philosophy in management of children’s fractures
- Management of the growing child
- Less surgery
- Implants used are different
- Knowledge of orthotics, seating and rehabilitative devices/equipment especially for neuromuscular problems
Seating Clinic in SCAS Workshop
Seating Clinic
Child able to do schoolwork
Current Global Challenges

- Minimal exposure to orthopaedics in medical schools
- Reduction in hours of work – implications on training especially for surgical management
- Competence-based training program with regular assessment of skills and knowledge
- Explosion of technology and surgery (driven by industry) and rise in healthcare costs
- Evidence-based practice
Poor preparation in Med School

- Most US/UK medical schools have very little orthopaedic teaching
- 82% of first year residents failed their musculoskeletal competency exam (Freedman & Bernstein: JBJS 1998)
- In Singapore, orthopaedic teaching forms a substantial component of medical curriculum in the NUS medical school
Prerequisites of Training

- Selection process
- Good training program
- Good teachers (mentors)
- Adequate clinical material and exposure
- Assessments – formative and summative
How to select residents?

- Current selection is based on a combination of criteria: (a) good CV and academic achievements (b) satisfactory completion of appropriate surgical rotations, (c) passing an entry exam and (d) an interview (e) good references

- May be arbitrary, subjective, unreliable and does not predict the future performance of the trainee
How to select residents?

- A good selection system should be able to differentiate “the best” from “the rest” and to test for potential instead of exam competence alone
- Define attributes that make a good orthopaedic surgeon
- Develop tools to measure these attributes and validate them
How to select residents?

Possible domains for assessment of potential orthopaedic trainees

- **Intellectual ability**

- **Intrinsic ability (aptitude)**
  - Technical ability
  - Social skills
  - Personal attributes
Intrinsic ability (Aptitude)

- **Technical**: Manual dexterity, hand-eye coordination, 3D thinking, complex problem solving ability
- **Social**: Communication skills, team work, leadership skills, ability to take responsibility
- **Personal**: Decisiveness, Commitment, Motivation, Diligence, Trainability
EU regulations

EWTD – European Working Time Directive

- From Aug 1, 2004: 58 hours
- From Aug 1, 2007: 56 hours
- From Aug 1, 2009: 48 hours

- Impact on training?
Residency training hours in US

- Accreditation Council for Graduate Medical Education (ACGME) recommendations effective July 1, 2003
- Resident duty hours limited to 80 hours per week averaged over 4 week period
- In-house call frequency cannot exceed one in three nights
- One 24 hour day in seven must be free of patient-care responsibilities

JBJS 87A(11): 2576-2586, 2005
Main Concerns of ACGME

- Effect of sleep deprivation on patient care
- Attentional failures
- Increased risk of medical error
American OA survey

- 51% of program directors and 27% of residents responded
- “Lost educational opportunity” and “compromise in patient care resulting from an overall disruption in continuity of care”
- Development of “shift mentality” among the residents – effect on professionalism?
- Increase in work for faculty members and senior residents
American OA Survey

- Less training time for surgical cases
- 46% of program directors and 42% of residents felt that the surgical volume was inadequate
- Neither group felt that the residents were better prepared for cases and examinations

Recent survey from USA showed that failure rate for ABOS Part I examinations has increased from 11% in 2009 to 19% in 2010
What were the positive aspects?

- More rest, less fatigue, greater alertness, better morale, more self-study opportunities
- Fewer medical errors?
- Program directors have to re-look at educational value of each component of the residency training program
- Move towards a more competence-based system
Postgraduate education

- “You train dogs and you educate men” (Howard Hatcher)
- Competence-based and not time-based program
- Requires a structured program with increasing levels of competencies with each year of training
- Wide exposure with proper supervision
Dreyfus brothers

- Logical progression of competency acquisition
- Novice – advanced beginner – competent – proficient – expert – master*
- Medical school prepares the student to be an advanced beginner
- Postgraduate training and subsequent CME accomplishes the rest

* >10,000 hours of training (Outliers: Gladwell)
> 10,000 hours of training
Training program

- Acquire knowledge base, reasoning capacity, diagnostic ability, surgical skills and habit of life long learning in a conducive environment
- Professionalism, communication and ethics
- Protected time for studies
- Ability to read and analyze publications
- Research involvement
Accreditation of Training Centres

- Facilities
- Workload (number and variety)
- Competent and committed trainers
- Educational programs
- Protected time for trainers and trainees
Training the trainers

- Medical Education Units
- How to teach?
- How to assess residents?
- How to set examination questions?
- How to conduct clinical examinations?
Assessment

- In-training (continuous assessment – can be formative and summative)
- American OITE as a tool to assess deficits in knowledge and training
- Log books (record of surgical exposure)
- Exit examination (structured and objective)
- Assessment for fully independent practice
Assessment/Examination

- Current system assesses knowledge
- Need to assess other components such as professionalism, ethics, doctor-patient relationship, communication skills
- Non-surgical management – too much surgery? Need to assess decision-making process.
- Surgical competence – log books not always reflective of this
Paediatric Orthopaedic Training

- All orthopaedic trainees must have 3 – 6 months of exposure to paediatric orthopaedics and trauma
- Residents who wish to become paediatric orthopaedic surgeons should do clinical fellowships in reputable centres for 1 – 2 years
- Additional exposure to multidisciplinary clinics for neuromuscular problems and rehabilitation
Additional requirements

- Involvement in research and scientific thinking
- Attending and presenting research findings in national, regional and international conferences
- Attending special courses e.g. POSNA ASEAN Paediatric Orthopaedic course
- Involvement in VWOs and community
Children in need
“It is not how much we do, but how much love we put in the doing. It is not how much we give, but how much love we put in the giving.”

Mother Theresa
1910 - 1997
Community Engagement

- National level: Ministries and government bodies; professional associations
- Local level: Hospitals and clinics, volunteer welfare organisations
- Fund-raising
- Public education
ASEAN co-operation

- POSNA-ASEAN courses
- Fellowships in paediatric orthopaedics
- Exchanges through national orthopaedic societies
- Formation of an ASEAN paediatric orthopaedic grouping?
- Outreach programs
Outreach programs

- Teams of surgeons travelling to more underdeveloped or remote areas to train local doctors and nurses and perform surgery
- Can include nurses and other healthcare workers
- Main aim is to empower the local doctors and nurses
“He who practices not for money, nor for caprice, but out of compassion for living beings (bhuta-daya), is the best among physicians”

from: Charaka Samhita
“The Physician must develop first a sense of compassion and piety, and then make a commitment to try to save every living creature, to treat every patient on equal grounds and to avoid seeking wealth because of his expertise.

Sun Simaio
7th C Ethicist
Eventual Aim

To produce a competent surgeon who practices Orthopaedics with care and compassion, not for the sake of financial incentives, and who continues to maintain the highest ideals of our profession.
“You are in this profession as a calling, not a business; a calling which extracts from you at every turn self-sacrifice, devotion, love and tenderness to your fellow man. We must work in the missionary spirit with a breath of charity that raises you far above the petty jealousies of life”

Sir William Osler
The Future of Orthopaedics

- Bright!
- Much to do in developing countries
- Trauma – accidents, wars, terrorism
- Deals with function and disability – economic and lifestyle considerations
- Aging population – degenerative bone and joint disease, osteoporosis
- Affluence – economic and lifestyle considerations (baby boomers!)
Thank you

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