Current status of orthodontic professionals in the Asian Pacific region

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Abstract

Asian Pacific Orthodontic Society (APOS) was developed in Tokyo on October 1, 2001. Currently, APOS has grown up to a scientific association specified to orthodontics with 18 affiliated societies. However, the status of orthodontic professionals in each society remains unclear beyond our understanding. To this end, I have recently conducted an internet interview to the representatives of affiliated societies. The questionnaire includes the educational system for dentists and orthodontists, the number of orthodontic departments with post-graduate programs, the number of orthodontists or members of each society, orthodontic treatment fee on average, the prevalence of CLP and the treatment, orthodontic treatment for jaw deformity patients, current status of orthodontic treatment with lingual appliances and TADs, important issues for orthodontic specialists, future plans of each society. It is hopefully anticipated that the current status of orthodontic professionals in the Asian Pacific region are well understood by all the APOS members and will become a great benefit for the development of all the affiliate societies.

Key words: Orthodontic professionals, Asian Pacific region, Educational system, Orthodontic treatment, Malocclusion

INTRODUCTION

History of Asian Pacific Orthodontic Society

Asian Pacific Orthodontic Society (APOS) was inaugurated on October 10, 2001, in Tokyo, Japan, by its nine founding members shown below alphabetically.

1. Association of Philippine Orthodontists (APO)
2. Association of Orthodontists Singapore (AOS)
3. Chinese Orthodontic Society (COS)
4. Hong Kong Society of Orthodontists (HKSO)
5. Indonesian Association of Orthodontists (IAO)
6. Indian Orthodontic Society (IOS)
7. Japanese Orthodontic Society (JOS)
8. Korean Association of Orthodontists (KAO)
9. Thai Association of Orthodontists (ThaAO).

The purpose for which the APOS has been formed is to assist affiliated societies/associations to promote excellence in orthodontics through education and research in the Asian Pacific region. Moreover, the activity of APOS is to disseminate scientific and artistic information relating to orthodontics particularly through its biennial congress, Asian Pacific Orthodontic Congress (APOC).

Footnote:

The content of this article, in part, has already been presented at the 8th WFO-IOC "APOS-World Village Day" held in London on September 29, 2015.

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The first APOC was held in Osaka in 1991. At the meeting, the representative members confirmed a plan to establish APOS and the preparatory committee at the 2nd APOC in Seoul in 1995 and the 3rd APOC in Taipei in 1998, respectively. After that, the representatives meetings were held at every AAO Annual Meeting and the preparatory committee meetings were held in Bangkok, Osaka, and Seoul to prepare the Bylaws. Finally, the representative committee has reached a conclusion to establish APOS in Tokyo in conjunction with JOS Meeting in 2001 [Figure 1].

Currently, the APOS has grown to an academic society specified to orthodontics with 18 affiliate members after the addition of the following societies:

1. Australian Society of Orthodontists (ASO)
2. Bangladesh Orthodontic Society (BOS)
3. Malaysian Association of Orthodontists (MAO)
4. Macau Association of Orthodontists (MacAO)
5. Pakistan Association of Orthodontists (PAO)
6. New Zealand Association of Orthodontists (NZAO)
7. Orthodontic and Dentofacial Orthopaedic Association of Nepal (ODOAN)
8. Sri Lanka Orthodontic Society (SLOS)
9. Taiwan Association of Orthodontists (TAO).

Past APOS Presidents include Dr. Gakuji Ito (JOS), Dr. Hideo Mitani (JOS), Dr. Jae Chan Kim (KAO), Dr. Somchai Satravaha (ThaAO), Dr. Kai-Woh Loh (AOS), and Dr. Kazuo Tanne (JOS). At present, the President of APOS is Dr. Nikhilesh Vaid from IOS [Figure 2].

We have recently achieved the following issues.

1. Official registration of APOS as an academic society
2. Establishment of APOS bank account for maintaining the sound financial status
3. Publication of official Journal "APOS Trends in Orthodontics."

Figure 1: Asian Pacific Orthodontic Society founding members to attend the signing ceremony in Tokyo (October 10, 2001)

With respect to the publication of APOS Trends in Orthodontics, I would like to express a sincere appreciation for the efforts of Dr. Nikhilesh Vaid, who delivered a message shown below.

The year of 2013 was a very important year for "APOS Trends in Orthodontics." I have to thank the dynamic and inspirational leadership of immediate past president of APOS, Dr. Kazuo Tanne for it. We have been indexed by 14 agencies and should be PubMed Indexed in 2014. We have six issues/year, dedicated to Orthodontic Research, Clinical Articles, and Clinical Pearls. All articles are available for free download. In addition, a new feature introduced is the article statistics. We plan to start biannual awards for the most popular and cited articles. The editorial team would love to welcome articles from each affiliated society. All the APOS members can submit it online at http://www.apospublications.com/submitarticle.asp.

Internet interview

As mentioned above, APOS has grown up to an academic association specified to orthodontics. However, the current status of orthodontics in each affiliated society still remains unclear and beyond our understanding. From

Figure 2: (a) Past Presidents of Asian Pacific Orthodontic Society (from left to right, Dr. Gakuji Ito, Dr. Kai-Woh Loh and Kazuo Tanne. (b) Current Asian Pacific Orthodontic Society office bearers at the 8th IOC Asian Pacific Orthodontic Society-World Village Day in London (September 29, 2015)

these considerations, we explored a certain approach to elucidate the nature of orthodontic education and clinical orthodontics in the Asian Pacific region. Since July 2013, I have been conducting an interview with VIPs or representatives of APOS affiliate societies about a series of questionnaires on the current status of orthodontics in the Asian Pacific region. In addition, the results of interview have already been published in the Journal of Orthodontic Practice, an orthodontic journal in Japan, after having translated into Japanese for a better understanding of Japanese Orthodontists. Furthermore, I presented a lecture entitled "Current status of orthodontic professionals in the Asian Pacific region" at the 8th World Federation of Orthodontists (WFO)-International Orthodontic Congress "APOS-World Village Day" held in London on September 29, 2015. Thus, this article was designed to share and disseminate the knowledge about the current status of orthodontics and our professionals in APOS affiliate societies with all the members, students, friends, colleagues, and respectable teachers.

MATERIALS AND METHODS

For a period of July 2013 to February 2015, I requested an internet interview to each of the VIPs in APOS affiliate societies listed below in an alphabet order.

- Dr. Bryce Lee (AOS)
- Dr. Roberto Tan (APO)
- Dr. Zakir Hossain (BOS)
- Drs. Zhihe Zhao and Tianmin Xu (COS)
- Dr. Wilson Lee (HKSO)
- Dr. Himawan Halim (IAO)
- Dr. Nikhilesh Vaid (IOS)
- Dr. Hee-Moon Kyung (KAO)
- Dr. Wei Lin (MacAO)
- Dr. Peter Fowler (NZAO)
- Dr. Dashrath Kafle (ODOAN)
- Dr. Ambreen Afzal Ehsan (PAO)
- Dr. Wickramasinhe M. Senadeera (SLOS)
- Dr. Johnny Liaw (TAO)
- Dr. Somchai Satravaha (ThaAO).

The interview was designed to ask about the following subjects through the internet.

1. Current status of orthodontics in each affiliate society in terms of the number of orthodontists or members in the society, and the numbers of dental schools and/or Orthodontic Departments
2. Educational process to become dentist and orthodontist in each affiliate society
3. Therapeutic system or clinical technique successfully used for good treatment outcome and orthodontic treatment fee on average
4. Supply of orthodontic materials
5. Prevalence of malocclusion
6. Percentage of nonextraction treatment
7. Treatment of jaw deformity patients
8. Prevalence of cleft lip and palate (CLP) and the therapeutic system
9. Current status and future development of orthodontic treatment with lingual appliances
10. Current status and future development of orthodontic treatment with temporary anchorage devices (TADs)
11. Important issues for orthodontic specialists
12. Future plan of each affiliate society.

All the replied information and comments from each interviewee were shown in the text without any substantial modification. In addition, numerical data were summarized in tables.

RESULTS

Current status of orthodontics in each affiliate society in terms of the numbers of orthodontists or members in the society and dental schools and/or Orthodontic Departments

The numbers of Orthodontic Departments and members are shown in Table 1. It should be noted that the number of dental school or Orthodontic Department is zero in MacAO and only one in AOS, HKSO, NZAO, and SLOS. The total number of members in APOS affiliate societies is approximately 18,000. Among these, the members in four big societies, COS, IOS, JOS, and KAO, is more than 80% of the total number.

Table 1: The numbers of orthodontic departments and members in each affiliate society

Affiliate society	Orthodontic departments	Members in each society
AOS	1	about 100
APO	4	125
BOS	2	120
COS	>60	2,421
HKSO	1	about 70
IAO	30	550
IOS	about 100	about 3,000
JOS	30	6,513
KAO	11	>3,000
MacAO	0	14
NZAO	1	78
ODOAN	11	35
PAO	around 50	about 100
SLOS	1	56
TAO	7(16)	602
ThaAO	9	751

The replies or comments from each interviewee are shown below.

Association of Orthodontists Singapore

Our dental school in Singapore, the faculty, is at the National University of Singapore, began a formal training program in orthodontics only about 20 years ago. This is a 3-year program, and we currently train up to 6 orthodontists a year. Prior to this, all orthodontists were trained overseas.

AOS was founded in 1991. We currently have about 100 members in AOS; all of them have undergone formal orthodontic training.

Association of Philippine Orthodontists

To date, there are four universities in the Philippines, which offer postgraduate (PG) orthodontic training programs. These are University of the Philippines (UP), Centro Escolar University (CEU), Manila Central University, and University of the East. All programs award a Certificate of Proficiency in Orthodontics and for most, a degree of Master of Science in Dentistry (Orthodontics) upon completion.

Currently, there are 125 APO members comprising fellow 68, diplomate (included in fellow) 18, active member 2, affiliate member 18, associate member 35, and international member 2.

Bangladesh Orthodontic Society

Currently, there are two Orthodontic Departments that run PG course. In these departments, two students from the Department of Orthodontics, Hiroshima University Faculty of Dentistry, Drs. Zakir Hossain and Saif Uddin, are playing important roles as the chairs. At present, there are 120 BOS members or qualified orthodontists.

Chinese Orthodontic Society

There are over 60 Orthodontic Departments in China. Most of the dental students spend 5 years to get DDS before they can take the entrance examination to be an orthodontic graduate student. After 3 years, orthodontic training, they graduate with an MS degree in orthodontics, or they may spend another 2–3 years to get a Doctoral degree in orthodontics or a PhD. We used to consider them as orthodontic specialists in China. Currently, we have 2,421 COS members.

Hong Kong Society of Orthodontists

Of the 2000 dentists registered under the Dental Council of Hong Kong, there are about 70 of them legally registered as a specialist in orthodontics. The representative specialist society is the HKSO (www.hkso.hk). There is only one dental school in Hong Kong, which is the Faculty of Dentistry of the University of Hong Kong (HKU) (http://facdent.hku.hk/). The dental school was formally established in 1982. Before that, all dentists in Hong Kong were trained overseas, obtained their education from, e.g. Taiwan, Philippines, UK, and USA. Now, the orthodontic discipline under the Faculty of Dentistry offers the only academic training of orthodontists in Hong Kong.

Indonesian Association of Orthodontists

Indonesia has 30 dental schools with five orthodontic programs. IAO has about 550 members.

Indian Orthodontic Society

Today, we have close to 250 dental schools and around 100 of them are offering Master programs in orthodontics. We have close to 400 orthodontists graduating every year. The current number of orthodontic specialists in India who are IOS members is close to 3000.

Japanese Orthodontic Society

In Japan, we have 29 dental schools and 30 Orthodontic Departments with authorized PG orthodontic programs. As of February 21, 2014, the number of JOS members is 6513.

Korean Association of Orthodontists

In Korea, we have 11 dental schools and more than 3000 members in KAO.

Macau Association of Orthodontists

We have 14 members in our association, and there are nine Orthodontic Departments in Macau.

New Zealand Association of Orthodontists

There is only one Dental School in the University of Otago in New Zealand which includes the Orthodontic Department and is located in the South Island City of Dunedin. The current Head of Department is Professor Mauro Farella and each year 3 PG students commence a 3-year Clinical Doctorate Program in Orthodontics (9 students in total).

There are 78 registered orthodontic specialists in New Zealand, of which, 74 are full members of NZAO. In addition, the NZAO has 9 life members, 7 retired members, 10 student members, and 21 corresponding members (overseas). The registered orthodontic specialists must have completed formal PG university-based training. Over 50% of these have been undertaken at the Orthodontic Department, Faculty of Dentistry, University of Otago. The remaining orthodontists have undertaken their specialist training in universities based in the UK, USA, Australia, and more recently Europe.

Orthodontic and Dentofacial Orthopedic Association of Nepal

Academically, we have 11 dental colleges of Nepal with the Department of Orthodontics. The total number of dentists in Nepal is 800. We have 35 orthodontists registered.

Pakistan Association of Orthodontists

We have around 100 orthodontists (qualified) in Pakistan. We have around 50 dental schools and all of them have Orthodontic Departments.

Sri Lanka Orthodontic Society

Sri Lanka has only one dental school under the University of Peradeniya and no private dental schools. Average annual intake is about 70. We have only one PG training program in orthodontics under the University of Colombo. A total number of qualified orthodontists is 56.

Taiwan Association of Orthodontists

The number of Orthodontic Departments in Taiwan is seven. However, the qualified orthodontic institutes providing certified orthodontic programs are totally 16 until now.

The number of active TAO members is 602. In Taiwan, there are two academic bodies for orthodontics, TAO and TOS. In 2010, TAO was assigned to accredit the orthodontic program and certify the licenses of orthodontist. After that, all the new members of TAO are limited to certified orthodontists, whereas TOS includes many dentists who, having no opportunity to enter the certified orthodontic programs, are still interested in orthodontics.

Thai Association of Orthodontists

Thailand has nine dental schools (eight government schools and one private school); only five government schools have PG programs in orthodontics.

ThaAO has 751 members, 507 ordinary members (orthodontists), 100 student members (PG in orthodontics), and 144 associate members (general practitioners [GPs]). Seventy percent of ThaAO ordinary members did their PG studies in orthodontics in Thailand whereas 30% finished their PG studies abroad.

Educational process to become dentist and orthodontist in each affiliate society

Table 2 shows the duration of educational systems for dentists and orthodontic specialists in each affiliate society. In most countries in Asian-Pacific region, it takes 5–6 years to complete dental education for Bachelor of Dental Surgery (BDS) or DDS. It should be noted that dental school system for 8 years has recently been started in Korea. Thus, Korea has two kinds of educational system to become a dentist. Some dental colleges have a traditional system of 2-year predental course plus 4-year dental course. Meanwhile, six dental colleges have changed their educational systems to 4 + 4 system since 2005, which means 4 years of bachelor degree plus 4-year dental school program.

Table 2: Duration of educational systems for dentists and orthodontists

Affiliate society	Dentist	Orthodontist
AOS	6	5
APO	6	2-3
BOS	5	4-5
COS	5	3 (MSc), 5 (PhD)
HKSO	6	6
IAO	6	3
IOS	5	3
JOS	6	5
KAO	6 (2+4), 8 (4+4)	4
MacAO	5-6	2-3
NZAO	5	5 (2+3)
ODOAN	5.5	3
PAO	4	4
SLOS	4	5
TAO	6	5(2+3)
ThaAO	6	2-3

For orthodontic specialists, in general, it takes 3–6 years as either resident or Master or Ph.D. student. It should be noted that, in Hong Kong, it takes at least 6 years after graduation from dental school to become an orthodontic specialist, which seems one of the most difficult PG orthodontic programs in the world.

The replies and the relevant comments are shown below for better understanding of the readers.

Association of Orthodontists Singapore

In order to become an orthodontic specialist in Singapore, one must have undergone 3-year training in a recognized orthodontic program (what we term basic specialist training). Thereafter, each individual must gain experience in orthodontics for at least 2 years (we call this advanced specialist training) before presenting himself for a specialist exit assessment. On passing this assessment, the individual can put his name on the dental specialist register and call himself a dental specialist in orthodontics. This register is new and only started in 2008.

Association of Philippine Orthodontists

To complete the dental education in the Philippines, you need at least 6 years of studies leading to the degree of Doctor of Dental Medicine (DMD). This would be followed by a 4-year Dentistry Proper course. There are

26 dental schools offering DMD. After completing 6 years of dental education, one needs to pass the National Dental Board Licensure Examination. This examination is conducted twice a year and includes theoretical and practical examinations.

The University of Philippines (UP) and CEU are the only recognized Orthodontic Graduate Programs in the Philippines. All graduates of accredited programs are exempt from taking the first phase (dexterity and interview) of the Philippine Board of Ophthalmology (PBO) diplomate examinations whereas graduates of nonaccredited universities are required to take the first phase of PBO diplomate examinations.

Bangladesh Orthodontic Society

Postgraduate course started in 1999. After the completion of 5-year BDS course followed by 1-year internship, there are 4–5-year courses to become qualified orthodontist.

Chinese Orthodontic Society

If somebody wants to be a dentist, he/she must finish a 5-year college study. After a 5-year study, the graduate can get a license to be a general dentist. Then, he/she can apply for qualified examination for further training to be an orthodontist. There are two kinds of orthodontic training: 3-year training for Master degree and 5-year training for Ph.D. degree.

Hong Kong Society of Orthodontists

Since 2012, the undergraduate degree of BDS of HKU is a 6-year program. After at least 1 year of employment in general dentistry, the dentist is eligible to apply for the Master of Orthodontics (MOrth) program at HKU. This is the beginning of the orthodontist training pathway under the College of Dental Surgeons of Hong Kong (www.cdshk.org). It is a full-time 3-year program, with an emphasis in both research and clinic training. After obtaining the Master degree in HKU, the orthodontic trainee will need to pass the Membership in Orthodontics of Royal College of Surgeons of Edinburgh (MOrth RCS Edin) before eligible to proceed to the final 2-year of higher training in orthodontics. The higher training can be done at the government hospital or taking the 2-year part-time Advanced Diploma in Orthodontics (AdvDipOrtho) degree at HKU. Finally, the College of Dental Surgeons of Hong Kong will conduct a final exit examination for the higher trainee before they can officially and legally registered and called themselves the title Specialist in Orthodontics. Overall, it takes at least 6 years after graduation from dental school to become an orthodontic specialist in Hong Kong. Thus, our training is one of the most difficult in the world. It is also hard for foreign orthodontists to obtain a specialist title in Hong Kong since they have to first pass the Hong Kong dentist licensing examination, and then the MOrth RCS Edin examinations before they can be eligible to apply as a higher trainee in the pathway.

Indonesian Association of Orthodontists

Dental school in Indonesia is straight from high school graduate and the time to become dentists takes 6 years and 3 years to complete orthodontic program.

Indian Orthodontic Society

Dental education starts with the basic BDS degree, which is 4 + 1 (compulsory internship) or 5 years. After you graduate as a dentist, you are immediately eligible to apply for a Masters course in orthodontics through entrance exams conducted by various central and state government bodies, and private universities admitting candidates in orthodontics for a Master program. The master program in orthodontics is of a 3-year duration. Hence, it ideally takes 8 years to be an orthodontist.

Japanese Orthodontic Society

It takes 6 years to complete dental education for DDS. After the graduation from dental school, dental license examination is held by the Ministry of Health. After getting the license, all the dentists have to take a 1-year clinical training. Then, they can take a 5-year postgraduate orthodontic program. In completion of the program, they can be given a certificate in orthodontics if they pass an oral examination about two treated cases presented at the JOS annual meeting.

Korean Association of Orthodontists

In Korea, there are two kinds of the educational system to become a dentist. Some dental colleges have a traditional system of 2-year predental course plus 4-year dental course. Six dental colleges have changed their educational system to 4 + 4 system since 2005, which means, to enter the dental schools, the students have to finish 4 years of bachelor degree and then they can take 4-year dental school program.

Specialist programs consist of 4 years in total, 1 year as an intern, and 3 years as a resident in 29 Orthodontic Departments with authorized programs in Korea. They together develop around 45 orthodontic specialists per year.

For the past 7 years from 2008 up to present, 331 orthodontic specialists have finished the program. From 2008, those who finish the orthodontic programs were given the title as "specialist" accredited by the government whereas those who completed the program before 2008 are not approved officially as specialists by the Korean government standards. The number of orthodontic specialists, approved in each year from 2008, is shown herein.

2008	39	2009	47	2010	57	2011	49
2012	47	2013	48	2014	44		

Macau Association of Orthodontists

As in Macau, we do not have our dental school, it means all our dentists studied aboard. Macau citizen can get the license from the government after they finished 5–6 years to complete dental education and got the bachelor degree in dentistry. Moreover, it still needs 2–3 years training for the dentists to become an orthodontist.

New Zealand Association of Orthodontists

Students must complete a 5-year Bachelor in Dental Surgery (BDS) Degree and spend at least 2 years in general or hospital based practice before they can apply to undertake specialist orthodontic training. It is expected that applications for the PG training program to have successfully completed Part 1 of the Australasian College of Dental Surgeon's Fellowship examination or similar, prior to submit their application. Entry to the program is extremely competitive with applicants seeking one of the three positions available every year. The 3-year Clinical Doctorate in Orthodontics commences in February and involves both clinical and research training.

Orthodontic and Dentofacial Orthopaedic Association of Nepal

The duration of dental education in Nepal is 5.5 years which includes 1 year of compulsory internship training. To become an orthodontist, a dentist has to be enrolled into a postgraduate program which is for 3 years in Nepal.

Pakistan Association of Orthodontists

Pakistan has 4-year dentistry program for BDS and 4-year orthodontic residency program which leads to Fellow of College of Physicians and Surgeons or Master of Dental Surgery.

Sri Lanka Orthodontic Society

It takes 4-year undergraduate period to become a dentist. Presently, the PG program is altogether 5 years.

Taiwan Association of Orthodontists

It takes 6 years to complete dental education. The only way to become a certified orthodontist in Taiwan now is to train in a certified orthodontic program. After graduation from dental school, one can apply for the PG orthodontic program to get a Master degree or enter a residency program, which usually consists of 2-year training of general practice and 3-year orthodontic resident training.

Thai Association of Orthodontists

After high school education (12th grade) and after passing the university entrance examination, one can enroll then in the Faculty of Dentistry to study dentistry. Then, one must finish 6 years of university dental education and pass a license examination directed and controlled by the Dental Council of Thailand. Before finishing these 6 years of dental education, one must pass 2 parts of license examination, one written exam and one practical exam, to practice in Thailand as a dentist.

After becoming a dentist, one can apply to study in orthodontic programs which are residency training program, and MS in Orthodontics or Ph.D. program. Residency programs are under the supervision of the Royal Dental College of Dental Surgeons of Thailand while other two programs are under the supervision of the universities. At the time being, there are 4 residency programs at 4 universities and 5 MS and 2 Ph.D. programs at 5 universities. After finishing any of the programs, one can apply to take a board examination which is directed and controlled by the Royal Dental College of Dental Surgeons of Thailand under the supervision of the Thai Dental Council, to be Board qualified as Diplomate, Thai Board of Orthodontics.

Therapeutic system or clinical technique successfully used for good treatment outcome and orthodontic treatment fee on average

In the Asian Pacific Countries, a most popular technique frequently used in daily orthodontic practice is preadjusted straight wire edgewise technique. In addition, TADs or micro-implant anchorages (MIAs) have recently gained a greatest interest or concern in many APOS affiliate societies.

In most countries in Asian-Pacific region, orthodontic treatment fee varies around 2000 USD [Table 3]. Meanwhile, the fee is extremely low or approximately 350

Table 3: Orthodontic treatment fee on average

Affiliate society	Treatment fee in USD
AOS	1,875-3,000 (public) 3,850-4,500 (private)
APO	1,700-2,700
BOS	400-2,000
COS	1,500-2,400
HKSO	4,500 (3000;general dentist-10,000; specialist)
IAO	-
IOS	350
JOS	5,000-8,000
KAO	5,000
MacAO	4,000-5,000
NZAO	5,078-8,463
ODOAN	300-800
PAO	1200
SLOS	1000-1400
TAO	3500-6500
ThaAO	1187-2077(40,000-70,000Bahts)

USD in India. The biggest challenge facing IOS today is the financial health of the contemporary Indian orthodontists.

The replies from each interviewee are presented here for better understanding of APOS members.

Association of Orthodontists Singapore

A large majority of my cases I see at my practice are dental malocclusions. I have a very close working relationship with the pedodontist, prosthodontist, and oral surgeon that work in my practice. We, therefore, approach each case in this multi-disciplinary setting.

Association of Philippine Orthodontists

There are many new developments in orthodontics during the past years from bracket designs to anchorage source using MIAs. In our practice, we explore and evaluate the effectiveness of these new trends in orthodontics, while we keep focus on our treatment goals to achieve a functional, esthetically pleasing, and stable result.

The average orthodontic treatment fee, which includes upper and lower fixed braces, (with an average treatment time of 18–24 months) will cost about $1700.00–$2700.00. This varies depending on case difficulty and the location of the practice of the orthodontist. Orthodontic treatment fees are usually higher in Metro Manila as compared to those in rural areas. The patient is usually given a payment plan. Down payment would usually consist of 50% or half of the total fee whereas the remaining 50% would be payable by installment unless patient prefers to pay in full at the outset. Some would prefer the 40–60% formula and others would have the 30–70% depending on the market profile of their patients. Usually, APO members accept cash/check as payments whereas very few offices accept credit cards as means to settle fees.

Bangladesh Orthodontic Society

Currently, we use the removable technique (40%) and edgewise technique (60%). Use of activator is very popular in mixed dentitions and growing stage to correct Class III and Class II pattern and also to correct mandibular deviation with temporomandibular joint dysfunctions.

Treatment fee varies ranging from 400 to 2000 USD. For both nonqualified versus qualified orthodontists, it will take a few more years to standardize the treatment cost.

Chinese Orthodontic Society

Dr. Zhao

Straight wire technique is the most popular in the Department of Orthodontics, Sichuan University Hospital. Treatment fee in Sichuan University Hospital is about 1500 USD.

Dr. Xu

Straight wire appliances with sliding mechanics are mostly adopted in Peking University Hospital although we also use Tweed, MEAW, functional appliance, and so on. The treatment fee in PKU orthodontic clinic is around 2400 USD on average.

Hong Kong Society of Orthodontists

The most popular fixed appliance technique is the "straight-wire" or preadjusted edgewise fixed appliance with the 0.022-inch slot. The Roth and MBT prescriptions are the most popular specifications. Rapid palatal expansion and functional orthodontic appliance are also popular amongst specialists. Nowadays, due to aggressive marketing by commercial aligner company, removable aligner technique is becoming very popular amongst young adults. Majority of the treatment is provided by general dentists.

As most of the orthodontic treatments in fixed appliances are offered by general dentists, the treatment fee for a comprehensive 2-year orthodontic treatment started from the US $3000 by general dentists to as high as US $10,000 offered by a specialist in orthodontics. The average fee would be estimated at US $4500.

Indonesian Association of Orthodontists

We use growth spurt to treat skeletal malocclusion and extraction to get solve the bimaxillary protrusion cases. Indonesia is diverse country with different levels of income; hence, it is hard to get average fee of treatment.

Indian Orthodontic Society

India is very contemporary in terms of treatment techniques practiced. The standards of care in orthodontic treatment delivery and education are on par with the rest of the world in India. The biggest challenge facing us today is the financial health of the contemporary Indian Orthodontists.

The technique generally used in India is the PEA appliance, though certain quarters also practice Begg, self-ligation, and lingual and aligner therapy. Growth modulation, functional appliances, and surgical orthodontics are also practiced.

The average orthodontic treatment fee in India is around 350 USD, which is very low considering the inflation and financial growth rate of the country otherwise. The average number of patients seen by a practitioner in a year in India is 100. Hence, average gross collections for an Indian Orthodontist are just 35,000 USD/annum, which is far below the rest of the developing and developed world. We, as the IOS, are working very hard to address this issue by organizing workshops and symposia to educate our members about business aspects of orthodontics.

Korean Association of Orthodontists

Korean orthodontists learned and practiced almost all kinds of orthodontic techniques from the world for the last 50 years. They were using so many kinds of orthodontic techniques depending on the individual preference. However, all the techniques became easier and simpler after the use of micro implants as an anchorage.

Macau Association of Orthodontists

Our average treatment fee is around 4000–5000 USD.

New Zealand Association of Orthodontists

Because I work in both private and public hospital based practices, there is an ability to use various clinical tools and interests in either location. At the hospital, the use of distraction osteogenesis for complex cleft and craniofacial patients has resulted in successful outcomes that would not have been achieved with conventional orthognathic surgery and as well as increased stability of the changes achieved. The use of three-dimensional (3D) imaging and printing has aided detailed surgical planning in these cases. In private, the increasing use of Invisalign with auxiliary appliances has enabled more complex cases to be treated successfully in adults who would otherwise not undertake orthodontic treatment or would otherwise have not been for Invisalign alone.

The treatment fee for fixed appliance treatment ranges from approximately $6000 to $10,000 NZD (5078–8463 USD) and the fees charged for Invisalign/Incognito appliances range from $8000 to $12,000 NZD (6770–10,156 USD). This fee includes the 15% government goods and service tax. There is very limited 3rd party or insurance payment for orthodontics and state funding of orthodontics is limited to patients with CLP or craniofacial disorders only.

Orthodontic and Dentofacial Orthopedic Association of Nepal

I am treating most of my orthodontic cases with preadjusted edgewise appliances. However, for the last few years, I have been trained in lingual orthodontics, clear aligners, and self-ligating systems. Hence, I have incorporated those appliances in my clinical practices in recent years.

On average, we are charging 300–800 USD for the orthodontic treatment. Yet it depends upon the doctors to doctors and clinics to clinics. However, government hospitals and university hospitals charge less compared to private practices.

Pakistan Association of Orthodontists

We usually follow the same objectives as are required in the American Board of Orthodontists. This enables us to keep quality control and, later on, appear in other Royal College exams. The average fee is around 1200 USD.

Sri Lanka Orthodontic Society

I manage a considerable number of CLP cases. I have invented a cheap and convenient technique for osteodistraction of the constricted maxilla using a rapid maxillary expansion screw.

Treatment fee for an average case varies from 130,000 to 190,000 SL Rupees, which is something like 1000–1400 USD.

Taiwan Association of Orthodontists

My recent clinical interests are application of TADs in various clinical situations (paradigm shifts of orthodontic treatment with TADs, tough cases made easy with TADs, nonextraction treatment with TADs, active vertical control with TADs in high angle cases, applications of TADs in asymmetry cases, gummy smile correction with TADs), interdisciplinary treatment (the beauty of interdisciplinary treatment, the challenges of adult orthodontics), and autotransplantation (autotransplantation, an alternative to implant prosthesis in mutilated dentitions).

As for the average treatment fee, it ranged from 3500 to 6500 USD among various clinics. For the most clinics, the average treatment fee lies around 4000 USD.

Thai Association of Orthodontists

We use removable appliances, functional appliances, myofunctional therapy, fixed orthodontic appliances, TAD, and others according to the indications. If growth modification is indicated and growth is still present, we do growth modification as the 1st stage treatment procedure, and then fixed orthodontic appliances as the 2nd stage treatment procedure.

I got many referred cases on Class III skeletal malocclusions for early treatment. Another topic is the use of TAD to facilitate orthodontic treatment.

Supply of orthodontic materials

It is shown that most techniques and appliances are available for use in every society. Orthodontic materials, meanwhile, are mostly imported from USA, Europe, China, India, and Japan, but recently produced in some APOS affiliate societies. Representative replies and comments are shown herein.

Bangladesh Orthodontic Society

Most materials are available here imported from abroad. However, one Bangladeshi company is producing orthodontic brackets and exporting to India, Malaysia, and other countries.

Chinese Orthodontic Society

More and more national manufacturers earn their reputation in the local market and some of the foreign markets. Moreover, their products cover almost all

orthodontic line, from traditional orthodontic products to clear appliance, individual lingual system, and so on.

New Zealand Association of Orthodontists

There are no orthodontic manufacturers located in New Zealand. The majority of orthodontic supplies are imported from North America, although others are sourced from Europe or Japan. There are various agents of the main orthodontic supply companies who service the NZ orthodontic practices and most are located in Australia.

Orthodontic and Dentofacial Orthopaedic Association of Nepal

We do not have our own orthodontic products in Nepal. Hence, we largely depend on suppliers who import orthodontic materials from India and China.

Sri Lanka Orthodontic Society

We import all the materials mainly from USA, Germany, and China.

Prevalence of malocclusion

In most countries in Asian-Pacific region, Class I malocclusion with bimaxillary protrusion exhibits higher prevalence. Meanwhile, prevalence of Class II malocclusion with maxillary protrusion is higher in New Zealand, Pakistan, and Bangladesh, similarly to that in Europe and the USA. In addition, this result is similar to the finding about the rate of nonextraction treatment with multibracket appliances to be shown later.

Association of Philippine Orthodontists

It is unfortunate that we do not have an accurate prevalence rate of the malocclusion in our country. Since we are composed of fragmented islands, it is difficult to gather data. However, there are inferential studies done on specific areas in the National Capitol Region. One study done in Caloocan city among 11–13-year-old students revealed the following data:

Class I - 66.67%, Class II div 1 - 10.78%, Class II div 2 - 10.18%, and Class III - 12.57%.

Hong Kong Society of Orthodontists

Of all, the occlusion in Hong Kong Chinese: 50% Class I malocclusion, 20% Class II malocclusion, and 5% Class III malocclusion with the remaining 25% as normal occlusion.

Indonesian Association of Orthodontists

According to our national survey, the malocclusion in Indonesia is above 60%, with Class I, then Class III, and Class II.

Macau Association of Orthodontists

The prevalence of malocclusion in Macau is 68.04% (2343 students with the age from 12 to 22 years were investigated in 2003): Class I-65.20%, Class III-20.10%, and Class II-14.70%.

New Zealand Association of Orthodontists

A recent study of 12–13 years old using the dental esthetic index (DAI) found that 60% required orthodontic treatment ("definite," "severe," or "handicapping" as defined by DAI assessments). An earlier study of children in the mixed dentition suggested orthodontic treatment would be "mandatory" in 30% of the children with an additional 20% being considered as "highly desirable" to undertake orthodontic treatment. The majority of malocclusions would be Class II, Class I, and a small proportion Class III.

Orthodontic and Dentofacial Orthopaedic Association of Nepal

According to the recent research done among high school students, the prevalence of malocclusion is 73%: Class I-59%, Class II-25%, and Class III-16% in Nepal.

Pakistan Association of Orthodontists

Prevalence of malocclusion is in order of Class II, Class I, and Class III although the exact values are unclear.

Sri Lanka Orthodontic Society

According to the latest National Oral Health Survey, the figures are same as the Western figures. However, we have more bimaxillary proclination cases.

Percentage of nonextraction treatment

In most countries in Asian-Pacific region, lateral soft tissue profile tends to exhibit convex or bimaxillary protrusion. Therefore, the percentage of nonextraction is relatively lower than in European and American continents [Table 4].

Table 4: Percentage of non-extraction treatment with multi-bracket appliances

Affiliate society	Percentage of non-extraction treatment (%)
AOS	50
APO	40
BOS	60
COS	35 (Chengdu), 30-40 (Beijing)
HKSO	<50
IAO	40
IOS	45-50
JOS	40
KAO	30
MacAO	20 (in Asian), 80 (in Caucasian)
NZAO	50-70
ODOAN	60
PAO	60
SLOS	very low
TAO	32.5
ThaAO	very low

However, it should be noted that nonextraction treatment is higher in BOS, NZAO, ODOAN, and PAO due to the lateral soft tissue profile similar to the Caucasians and exhibits an increase in association with the extensive application of MIAs in many societies.

Association of Orthodontists Singapore

I believe treatment planning has experienced a paradigm shift in terms of tooth extraction. Our decision to extract teeth or not is influenced greatly by facial proportions nowadays. I believe that orthodontists do not just shape teeth but also shape faces. As an Asian population, a large majority of our patients still present with bimaxillary proclination, extractions, especially in such cases are inevitable. I would say about 50% of my cases are extraction cases. This also reflects what my colleagues in Singapore experience.

Association of Philippine Orthodontists

About 40% of my cases are treated with nonextraction. Predominantly, bimaxillary protrusion, severe crowding, and adult Class II cases comprise about 60% of the cases I treated with extraction using multibracket appliances.

Bangladesh Orthodontic Society

According to recent 4-year data, extraction is 40% and nonextraction is 60%.

Chinese Orthodontic Society

About 35% of our patients are nonextraction cases during the last 10 years. Even the percentage is similar, the composition of extraction cases is different. We emphasized on the occlusion and extracted teeth to get final ideal occlusion. With the application of MIAs and self-ligation system, extraction criterion became strict. Community dental clinics developed very fast in the past 10 years at the same time. As a direct result of this development, almost there are no simple cases in our department recently.

Hong Kong Society of Orthodontists

With successful marketing of certain fixed appliance system, nonextraction orthodontic treatment has become more popular amongst orthodontic patients. In my opinion, it is the orthodontists' skills and techniques which can treat a case with nonextraction and not because of the appliance itself. I believe every patient has an individual limitation in the amount of space we can obtain by widening the arch form or proclination of incisors. As bimaxillary protrusion is popular among Hong Kong patients, it is not uncommon to treat patients by extraction. In addition, patients who seek treatment in the specialist clinic are usually more sophisticated and difficult, the percentage of extraction cases are usually higher in the specialist clinic than in the general clinic. Slightly more than half of my cases require extractions.

Indonesian Association of Orthodontists

In my clinic, the rate of nonextraction treatment is about 40%.

Indian Orthodontic Society

Bracket driven diagnosis is an ill of modern day mechanics that we are all facing due to unsubstantiated claims being made by manufacturers. Long-term stability of the claimed lateral expansion by these manufacturers has not been proven in any clinical trial so far. My criteria for deciding on extractions in borderline cases are these parameters (1) U1/NA, (2) L1/NB, (3) max crowding, (4) mand crowding, (5) soft tissue protrusion (Z angle or E plane), and (6) lower irregularity index. Alignment by proclining teeth is something I rarely do unless the pretreatment incisor positions indicate it.

Today, I am judicious about my choice of extraction because we have data on age changes, but the percentage of extraction cases in my office is still around 50–55%. This is because people rarely seek treatment for minor malocclusions in India.

Japanese Orthodontic Society

Recently, nonextraction treatment has increased by the use of MIAs to induce molar movement to the distal direction more easily than before. However, Japanese population has a tendency of bimaxillary protrusion in the lateral soft tissue profile; therefore, the rate of nonextraction treatment is around 40%.

Korean Association of Orthodontists

We have so many alveolar protrusion patients with crowding in Korea. Hence, the percentage of nonextraction cases is around 30%. After using micro implants, nonextraction treatment rate is increasing, though some borderline cases can be treated without extraction.

Macau Association of Orthodontists

In our clinic, 20% Asian are nonextraction teeth alignment with multibracket appliances. Because most nonextraction case patients prefer using removable appliance (e.g. Invisalign) to align the teeth by general dentists. And 80% Caucasian, they are nonextraction teeth alignment with multibracket appliances.

New Zealand Association of Orthodontists

Approximately, 30% of my patients seen in private have extractions. More than 50% of my patients in the hospital clinic have extractions which reflect more severe

malocclusions and decompensation extractions prior to undertake orthognathic surgery.

Orthodontic and Dentofacial Orthopaedic Association of Nepal

In my practice, around 60% of the cases are treated with nonextraction. In recent years, the extraction has reduced owing to the use of distalization as well as self-ligating system.

Pakistan Association of Orthodontists

The rate of nonextraction treatment is 60%.

Sri Lanka Orthodontic Society

Percentage wise, the number is less.

Taiwan Association of Orthodontists

There is indeed a tendency toward nonextraction treatment after the TADs were adapted to my clinical daily practice. I myself am also interested to know the percentage of nonextraction cases in my own clinic. I checked the percentage of nonextraction cases for last year, and it turned out to be 32.5%. Despite the increased tendency toward nonextraction treatment, there are still 2 times of extraction cases than nonextraction cases in my practice.

Thai Association of Orthodontists

In Thailand, we have bialveolar protrusion and crowding as major malocclusion. Hence, most of our cases if not treated early are treatment with extraction.

Treatment of jaw deformity patients

In most countries, surgical orthodontic treatment with orthognatic surgery is used successfully for jaw deformity patients whereas, in developing countries, the treatment has just introduced and will become more prevalent in near future.

Association of Orthodontists Singapore

I cannot speak for all orthodontists in Singapore, but the majority of us go through the protocol of (1) dental compensation (2) use of TADs to aid compensation, and (3) orthodontic/surgical approach, depending on the severity of the case seen.

Association of Philippine Orthodontists

Adult jaw deformity patients are treated in the Philippines with comanagement among orthognathic surgeons and orthodontists. As the need arise, other specialties get involve in the management of adult jaw deformities.

However, there are only few cases of orthodontic-orthognathic cases being done in private practice by our members. Filipinos have reservations when they come to orthognathic surgery for 2 reasons; (1) they scared to undergo surgery and (2) cost of treatment is too high. The treatment cost can range from US $5500–8000 for single jaw surgery and from US $9000–13,500 for double jaw surgery depending on the hospital of choice of the patient. Unfortunately, there is no subsidy or cost coverage by the government insurance for orthognathic surgery treatment in the Philippines. Meanwhile, adult patients with jaw deformity who do not want to undergo orthognathic surgery are usually treated orthodontically as compromise case with dental camouflage treatment.

Bangladesh Orthodontic Society

There are adult patients with jaw deformity in Bangladesh. In my department, we do functional examination of those patients, and consider treating those cases orthodontically, who can bring mandible either, in forward or backward movement and feel comfortable, we use functional appliance or occlusal splint.

Chinese Orthodontic Society

Orthodontists-orthopedic surgeons' cooperation group in our hospital is one of the first multidiscipline groups for jaw deformity treatment in China; (1) Patient assessment by both orthodontic and orthopedic departments in terms of the esthetics, function, psychology and physiology. (2) Group discussion with patient by use of goal set-up, 3D simulation of treatment goal, treatment schedule set-up. (3) Treatment following the schedule and reassessment if necessary. (4) Minor esthetic modifications after orthodontic and orthopedic treatments.

Indonesian Association of Orthodontists

Orthognatic approach is sole treatment of adult deformity, but since surgery still not popular in Indonesia and expensive, people opted to have compromise treatment.

Japanese Orthodontic Society

Orthodontic treatment including orthognathic surgery is covered by social health insurance.

Korean Association of Orthodontists

Adult patients who receive orthodontic treatment are increasing in Korea too. Many of them need orthognathic surgery because of large skeletal Class III population in Korea. These days, "Surgery First Approach" with 2 jaw surgery became very common. One of the reasons is that some entertainers received 2 jaw surgery for plastic reason to change their face quickly. Hence, laypersons started to prefer "Surgery First Treatment" to change their facial esthetics first. Moreover, many orthodontists started to accept this kind of surgery first approach trend because they became to be able to control the tooth movement more precisely during postsurgical orthodontic treatment

thanks to micro-implants. In addition, many orthodontists agree that they can have more rapid tooth movements after surgery, hence it is likely to reduce total treatment time in orthognathic surgery cases.

New Zealand Association of Orthodontists

Unfortunately, the main health insurance companies have withdrawn funding for orthognathic surgery over the last 5 years. This has resulted in a decline in the numbers of patients who can afford to undertake this type of treatment. Surgical fees in the private sector range from $8 to 10,000 for single jaw and $15 to 20,000 for two jaw surgery. Any patients, who have cleft or craniofacial syndromes, have their orthognathic treatment provided within public hospital clinics and the surgery is undertaken free of charge. A few public hospital clinics will also treat individuals who present with severe skeletal discrepancies, but this is a case by case basis and subject to ranking using a skeletal severity index.

Orthodontic and Dentofacial Orthopaedic Association of Nepal

The orthognathic approach in Nepal is completely new. Only from 2011, orthognathic surgery has been started in one center; however, it is slowly coming up. We are still lacking in this area.

Pakistan Association of Orthodontists

Thirty percent more and minor of jaw deformity patients can be treated with camouflage and severe is treated with orthognathic surgery.

Sri Lanka Orthodontic Society

In Sri Lanka, a lot of orthognathic cases are being done. The average fee in the private sector is about 3000 USD.

Taiwan Association of Orthodontists

Orthognathic surgery is now much more acceptable by the patients in Taiwan than before. The reason for that might be due to the on-line experience sharing of many patients and the surgeons are well experienced so that the treatment results are good and postoperative discomfort is largely reduced to an acceptable range. The risk of orthognathic surgery is decreased and the prognosis is greatly improved. Average treatment fee for orthodontic treatment is about the same as regular orthodontic treatment. The treatment fee for orthognathic surgery is around 8500 USD.

Thai Association of Orthodontists

In Thailand, patients prefer compensatory (camouflage) treatment than orthognathic surgery but the orthognathic surgery must be done when it is a must. The treatment fee for both orthodontic treatment and orthognathic surgery are not covered by any of the government organization. The patients must pay for the cost of the treatments themselves.

Prevalence of cleft lip and palate and the therapeutic system

Prevalence of CLP varies from 0.10% to 0.20% in most countries [Table 5], however, the rate of 0.800% in Indonesia is substantially greater than in the remaining affiliate societies. In the countries excluding Japan, Macau, New Zealand, Sri Lanka, and Taiwan, treatment of CLP is not covered by social health insurance, while under a certain consideration in Singapore, Indonesia, and Korea.

Association of Orthodontists Singapore

Prevalence of CLP patients is 2.07/1000 new-born babies per year (0.207%), cited from Yi, NN. *et al.*, Annals of the Academy of Medicine, Singapore 1999. KK Women's and Children's Hospital (KKH) has the only Cleft and Craniofacial Centre in Singapore. Patients are centrally treated here and have subsidies for the medical treatments, but there is no government subsidy for dental treatment. Most of these cleft patients will receive some form of financial help from the KKH's own funds or from charity organizations that are active in helping CLP patients. The Ministry of Health is currently looking at providing financial assistance to these patients. Once the paper is approved, these groups of patients will then have financial support not just for medical but also for dental as well. The dental treatments that would be covered will include nasoalveolar molding (NAM), orthodontics, orthognathic surgery as well as general dentistry for this group of patients. This answer was provided by the AOS President, Dr. Chng Chai Kiat who heads the Dental Department at KKH.

Table 5: Prevalence of CLP and financial support for the treatment

Affiliate society	Prevalence of CLP (%)	Financial support
AOS	0.207	A
APO	0.200	x
BOS	0.125	x
COS	0.163	x
HKSO	0.120	O (for only surgery)
IAO	0.800	A
IOS	0.100	x
JOS	0.143	O
KAO	0.10 - 0.14	A
MacAO	-	O
NZAO	0.180	O
ODOAN	0.164	x
PAO	0.189	x
SLOS	0.167	O (in state sector)
TAO	0.200	O
ThaAO	0.125	x

O: existed, X: none, A: under a certain consideration

Association of Philippine Orthodontists

The incidence of CLP in the Philippines is 1 in every 500 births or 0.200%. Unfortunately, cleft care is not supported financially by the government. Nongovernment organizations and foundations, consisting of volunteer doctors and other allied medical personnel, mostly support the multi-disciplinary management needs of indigent patients. The APO has partnered with Noordhoff Craniofacial Philippines, Inc., in managing CLP patients. The following protocol in managing CLP patients from birth to adulthood is being used;

0–3 months: NAM with lip tape.
3 months - above: Cheiloplasty/primary lip surgery.
12–18 months - above: Palatoplasty.
2 years old: Evaluation and if needed start of speech therapy by speech pathologist.
2 years old - above: Dental monitoring by dentist and orthodontist.
5–7 years old: If indicated (lateral incisor on the cleft site is erupting), alveolar bone graft (ABG) and phase I orthodontic treatment.
9–11 years old: If indicated (permanent canine on the cleft area is erupting), ABG and orthodontic treatment.
18 years old - above: If indicated, orthodontic treatment and orthognathic surgery.

Bangladesh Orthodontic Society

The prevalence of CLP is approximately 1/800 or 0.125%. We usually receive CLP patient during mixed or permanent dentition. For last one decade, there many overseas team (NGO, Smile Train, etc.,) based on UK, Japan, USA, Scandinavian countries, which give volunteer service for cleft repair. Moreover, oral and maxillofacial surgery and plastic surgery Departments of Medical Colleges do lip surgery. They are also referring us for orthodontic correction

Chinese Orthodontic Society

The prevalence of CLP among new-born babies in China is 1.625:1000 or 0.1625% in 1996–2000 obtained by China's Birth Defects Inspection Center. There is a series of treatment for CLP patients including plastic surgery, orthodontic treatment, speech training, hearing reconstruction, orthognathic surgery, psychotherapy, and so on in our department.

Hong Kong Society of Orthodontists

An estimated incidence of 1.2 CLP/1000 live births (0.120%) was reported in Hong Kong.* These figures are underestimates due to incomplete registration. (*King NM, *et al.*: The management of children born with cleft lip and palate. *Hong Kong Med J* 1996; 2: 153-9.) Due to the advancement in prenatal diagnostic technology, most cleft patients have been diagnosed before they were born. The government or private hospital where the baby was delivered can provide the lip or palate repair surgeries during the first 6–7 years of life. The surgical treatment fee at the government hospital is almost free. During the early mixed dentition, as dental and orthodontic treatments are needed, many patients will go to seek treatment at the CLP joint clinic in the Prince Philip Dental Hospital which is the teaching hospital of the dental school at HKU. The remaining patients would need to seek private treatment.

Indonesian Association of Orthodontists

According to survey done by the Surabaya Centre of CLP, the prevalence ratio is 8:1000 or 0.800%. Most of big cities in Indonesia has CLP center supported by the government.

Indian Orthodontic Society

The incidence of clefts in India is approximately 1 in a 1000 patients or 0.100%. A lot of our members are active in cleft care, along with cleft teams in institutions. Unfortunately most of the funding is still private or through philanthropic donations. Government support toward it still requires some structured effort.

Japanese Orthodontic Society

The prevalence of CLP is varied from 1/500 to 1/700 or has recently decreased from 0.200% to 0.143%; however, the rate is still higher than in Europe and USA. Treatment of CLP and 47 craniofacial anomalies is covered by social health insurance.

Korean Association of Orthodontists

Prevalence of CLP was 0.065% in 1979 and exhibited an increase to 0.10% (Min *et al.*: *Korean J Plastic Surg.* 23:1337-43, 1996) and 0.14% (Su *et al.*: *Korean J Plastic Surg.* 23:98-107, 1996). Unfortunately, CLP patients in Korea can receive benefit of medical insurance in surgical treatment only. In Korea, there is only one medical insurance system which is controlled by government. Other treatments including orthodontic treatment are not covered by insurance yet. However, government is working on the process to cover comprehensive treatment of CLP by medical insurance in near future.

Macau Association of Orthodontists

There is no official information about the prevalence of CLP among new-born babies in Macau. The treatment of CLP is conducted together by the Dental Department, plastic surgeon in government hospital and the support team in near region like Hong Kong. The treatment fee is also supported by our government.

New Zealand Association of Orthodontists

The NZ Cleft Audit has been recording all clefts born in NZ since January 1st, 2000. This is an ongoing audit

of cleft care and runs on 5 yearly assessment cycles. There are approximately 100 clefts born in NZ each year (1 in 556 live births or 0.180%) which is high compared to other international studies. The incidence of isolated cleft palate is unusually high among Maori and the rate higher than any other ethnicity reported internationally. CLP treatment including orthodontics is provided free of charge by the government with treatment often carried out by orthodontists employed by the public hospital Dental Department as part of a multidisciplinary cleft team.

Orthodontic and Dentofacial Orthopaedic Association of Nepal

One of the study done in Nepal in 2011 has shown the prevalence of CLP in Nepal to be 1.64/1000 live birth or 0.164%/year. In urban area, CLP new born babies are taken care by orthodontists, if not by general dentists. Commonly feeding plates, obturators, NAM type of treatment are offered. During mixed dentition, expansion, alveolar bone grafts, and maxillary protraction appliances are also offered by orthodontists. However, as Nepal being very poor country, many cases in rural area are untreated. The government does not support financially CLP treatment. There is one project called Smile Train, which supports for surgery. So far, the orthodontic treatment of CLP patients is not supported by anybody.

Pakistan Association of Orthodontists

Pakistan has very high prevalence of CLP or 1 in 528 new born babies (0.189%) has CLP. It is not supported by government. Usually NGOs are supporting it financially.

Sri Lanka Orthodontic Society

The prevalence is 1 in every 600 births or 0.167%. Sri Lankan health system is having two sectors, State and Private. In the State sector, any treatment for any Sri Lankan is totally free.

Taiwan Association of Orthodontists

The prevalence of CLP in Taiwan is 1:500 or 0.200%. The most part of the CLP patients in Taiwan are cared by the craniofacial center of Chang Gung Memorial Hospital, which is a patient-centered team approach consisted of orthodontics, plastic surgery, ear, nose and throat, speech therapy, and psychosocial therapy. The treatments for CLP are basically covered by the national health insurance. Only the orthognathic surgery is not covered and orthodontic treatment is partially covered.

Thai Association of Orthodontists

The incidence of CLPs to newborns in Thailand is 1:800 or 0.125%. Interdisciplinary treatment is conducted in Thailand for CLPs. We established a national Clinical Practice Guidance for CLPs so the interdisciplinary team knows when it is their turns to treat the patient.

Current status and future development of orthodontic treatment with lingual appliances

Lingual orthodontic technique has become popular and been accepted by adult patients in particular in most counties, but is still under development in the remaining societies due to lack in information and technical skills and the high cost. It is very interesting to know another reason from ThaAO such that patients like to have braces on the labial surfaces of their teeth as fashion statement as well as to show social status and thus less people are for the lingual orthodontics.

Association of Orthodontists Singapore

Treatment with lingual braces swings hot and cold in Singapore. It was very popular before the introduction of clear aligners. Now, it is gaining in popularity again. A certain brand marketed by 3M has gained a lot of interest now.

Bangladesh Orthodontic Society

Lingual orthodontics is yet to be introduced.

Hong Kong Society of Orthodontists

The most popular appliance is currently the Incognito lingual appliance. Lingual appliance is not offered at the government clinic; and of the 45–50 private orthodontists, <10 are regularly treating patients using lingual appliance. The AdvDipOrtho program at HKU offers lingual appliance training and Incognito is the main appliance they teach. With the establishment of the HKSO lingual appliance study group in 2012, we hold 3–4 informal meetings each year to improve our techniques and theories. As the convener of the study group, Dr. Wilson Lee has the responsibility to move the lingual technique in Hong Kong forward and believes lingual appliance would not move too far forward unless the specialists do more public patient education and let them know the advantages and disadvantages of lingual appliance versus removable aligners.

Indonesian Association of Orthodontists

Lingual orthodontics in recent years gains a lot of interest but is less popular due to the financial problem (too expensive) and not many orthodontists offer that service.

Indian Orthodontic Society

India has seen rapid strides in the field of lingual orthodontics during the past decade. India has a Lingual Orthodontic Society that was formed almost 5 years back with the Initiative of two young orthodontists from Mumbai, Drs. Jignesh Kothari and Praveen Shetty. This

body is affiliated to WSLO. In fact, lot of our orthodontists have graduated to CAD/CAM systems such as Incognito and Harmony. We also have Indian manufactured CAD/CAM systems.

Japanese Orthodontic Society

Lingual orthodontic technique has become very popular in association with increasing number of adult patients seeking for invisible appliances.

Korean Association of Orthodontists

With increasing number of adult patients, many of them ask for esthetic orthodontic treatment including lingual orthodontic treatment. Some dental companies and orthodontic laboratories developed many kinds of indirect bonding system. These days, some Korean companies started to make new lingual brackets too. However, large number of patients is hesitating to receive lingual treatment due to the economic situation, because fee of lingual treatment is double of that of conventional labial orthodontic treatment. Hence, many patients tend to receive combination treatment which is using upper lingual and lower labial appliance.

Macau Association of Orthodontists

Lingual braces become more popular than before and we use customized lingual braces in our practice. Increasing patients are also willing to pay more for getting the benefit from it.

Pakistan Association of Orthodontists

It is becoming very popular to use lingual appliances.

Sri Lanka Orthodontic Society

Currently, lingual orthodontic treatment is not so popular in Sri Lanka. Only a few barriers are cost and people are practicing.

Taiwan Association of Orthodontists

In Taiwan, lingual orthodontic technique has recently become very popular. In addition, Lingual Orthodontic Society has also been established recently in Taiwan and the number of the members is increasing.

Thai Association of Orthodontists

Thai patients like to have braces on the labial surfaces of their teeth as fashion statement as well as to show social status. Hence, less people are for the lingual orthodontics.

Current status and future development of orthodontic treatment with temporary anchorage devices

Recent topic in orthodontics with a great concern is TADs or MIAs, which have been successfully used and contributed to optimal orthodontic treatment. However, as pointed by Drs. Xu (COS), Fowler (NZAO), and Satravaha (ThaAO), it should be noted not to use TADs in cases without any need and indication or to limit the application to absolutely-needed and scientifically-indicated cases.

Association of Orthodontists Singapore

MIA or TADs was extremely popular at the turn of the century. I myself remember attending one of Professor Kyung's hands-on courses in the early 2000s. The interest and usage of TADs has now plateaued in Singapore but its usefulness is still undeniable. I have heard many times that the introduction of TADs has changed how we treat our patients. I fully agree with this.

Association of Philippine Orthodontists

The use of micro-implant or MIA started to gain acceptance in our country though barely new. During the past years, many speakers from South Korea, Singapore, Taiwan, and Germany gave lectures and showed the many benefits of the orthodontic anchor screw. With the introduction of the MIA in the Philippines, some of our members started using it in their practice and others are hesitant as they are new in the market. As of today, more and more are using it as they gain more confidence in the use of the MIA and have realized the many benefits of it.

Bangladesh Orthodontic Society

MIA has been recently introduced in the Department of Orthodontics, Dhaka University.

Chinese Orthodontic Society

Dr. Zhao

The MIAs are widely used in my clinic and entire China. MIAs are always used in such situations as strict anchorage control, extra anchorage force application, acceleration of orthodontic treatment, anchorage control for orthopedic force. With quick popularization of MIAs, fundamental researches are needed to discover biomechanical basis and improve the clinical techniques. My department has done a lot of fundamental and clinical studies on MIAs in the past few years, especially in my group. Moreover, these study results were applied to our clinical work very well.

Dr. Xu

Although new generation orthodontists use more and more MIAs in China, I seldom use them in my clinic. To my point of view, sagittal anchorage control doesn't need MIAs if following the Physiologic Anchorage Control Philosophy, which has recently been introduced in APOS Trends in Orthodontics. I use it only for the cases when massive intrusion is desired.

Hong Kong Society of Orthodontists

Anchor screws have been getting more popular in Hong Kong since the introduction of Abso-anchor and

Orlus TADs in 2002. Anchor plates are only popular in university teaching settings, and it is not popular in the private sector, since Hong Kong patients are very reluctant to undergo any minor surgeries to place an anchor plates in the oral cavity. Anchor screws are now much better accepted by the patients in Hong Kong, and all orthodontists know how to use anchor screws in their clinic.

Indonesian Association of Orthodontists

MIAs in recent years gain a lot of interest.

Indian Orthodontic Society

MIAs are the mainstay of anchorage control mechanics in India. A lot of articles have been published about the same, and there is excitement among Indian orthodontists about this technique, as the envelope of discrepancies that can be addressed with this modality has opened new horizons in orthodontics. In fact, the Dewel award, for the most popular article published in the AJODO, was awarded to an Indian orthodontist, Dr. Shakeel Ahmed *et al.* for the research they carried out in the field of MIA. There are Indian manufacturers for MIAs today, and you would rarely encounter an orthodontic office that does not use them.

Japanese Orthodontic Society

TADs have become very popular with the evidences from basic and clinical studies. Currently, various types of screws are produced in Japan. In addition, orthodontic anchor screws have been approved officially by the Ministry of Health and are currently covered by social health insurance.

Korean Association of Orthodontists

Microimplant as an orthodontic anchorage was first introduced by Drs. Seong-Min Bae and Hyo-Sang Park in 1998. They showed so many excellent cases at the Congress of KAO in 1999 using small diameter (1.2 mm) of surgical screws. They could easily place micro-implants between roots without any clinical problems. They showed that most kind of orthodontic tooth movements including *en masse* retraction and molar intrusion are possible with help of microimplants. After then, most Korean orthodontists started to use microimplants and this spread to all around the world. In 2001, our group started to produce orthodontic microimplants of our own design. We are still seeking the best design of microimplants and the best way of surface treatment to increase the success rate and to decrease side effects.

Macau Association of Orthodontists

Anchor screws play a main role in our practice. More and more patients avoid surgery through using anchor screws.

New Zealand Association of Orthodontists

These are being used by most orthodontists but on a "as need basis" with most used to enforce intraoral anchorage as opposed to the limited use of skeletal anchorage where orthodontists are actively trying to achieve orthopedic effects to avoid orthognathic surgery.

Orthodontic and Dentofacial Orthopaedic Association of Nepal

MIA has been started in Nepal recently. We are doing it for maximum anchorage, molar upright, distalization and intrusion. However, we are still lacking in the versatile application of MIAs. In the future, we want to expand the treatment facilities with MIAs.

Pakistan Association of Orthodontists

It is becoming very popular to use mini implants.

Sri Lanka Orthodontic Society

Most orthodontists are already using MIAs. I can predict the usage will be more in the future.

Taiwan Association of Orthodontists

The use of TADs in Taiwan is quite popular. The most often positions of TADs are infrazygomatic crest, interradicular position between U5 and U6 or U6 and U7, buccal shelf of mandible and palatal bone. Most doctors use direct anchorage application instead of indirect. As for the applications, protrusion reduction, deep bite correction, open bite correction, molar protraction, asymmetry and canted occlusal plane management and posterior cross-bite correction are the most often seen case types. In contrast to the predrilling smaller diameter mini-screw made of titanium alloy, the self-drilling larger diameter mini-screw made of stainless steel is a main stream in Taiwan.

Thai Association of Orthodontists

MIA, mini-screw as TADs have been used widely to assist tooth movements in difficult cases in orthodontic treatment. Anyhow, if conservative technique can be used with the same outcomes, it is then preferable.

Important issues for orthodontic specialists

Most societies have two important issues such as orthodontic treatment and inappropriate use of aligners such as Invisalign by GPs. The most important strategy is to appeal the public that orthodontic treatment should be executed by orthodontic specialists because the treatment quality is quite different from that of GPs. Meanwhile, another problem specified to each society can be introduced in the following text.

Association of Philippine Orthodontists

I am not aware of the problems of general dentists against orthodontic specialists in the Philippines. However, I can cite some problems of orthodontic specialists with general dentists today in Philippine. One of the biggest challenges of the orthodontic specialists in Philippines is the growing

number of GPs doing orthodontic treatment. The GPs are supposed to limit their practice to just simple preventive or interceptive orthodontics applying the best prudent judgment to treat simple cases; however, this is not the case. The GPs treat complicated cases and when problem arise, that is when patient seek the help of the orthodontic specialist. The thrust of the APO is to educate the public to choose their orthodontist wisely. However, this is tied up to another problem, which is financial consideration or cost of treatment. Most Filipinos are usually are looking for best bargain for their money and therefore most of the time, the professional fee of a practitioner and not his credentials determine whether or not he will be chosen by the patient to deliver the orthodontic service.

Hong Kong Society of Orthodontists

Most people and parents in Hong Kong are not familiar with the difference in orthodontic treatment provided by general dentist and specialist in orthodontics. They think a dentist should be competent in all types of dental treatment including orthodontics. Thus the dentists usually try to treat the cases themselves and only in very complicated cases they would refer to the orthodontists. Commercial orthodontic companies (like Invisalign) have been aggressive in patient marketing and attract the public to seek orthodontic treatment at their targeted dentists customers whereas trying their best in providing clinical advices to these dentists. There has been large variation of standard of treatment results. Few local dentists have also organized study groups and overseas speakers to provide "mini-residency" training course to dentists, with the aim in profit and sales of their products. This has entailed the interests of young graduates in pursue of the long specialists training pathway in Hong Kong. In the long-term, I think it is not very healthy as the specialty cannot attract the best graduates for the orthodontic training.

Indonesian Association of Orthodontists

Like other part in the world, we have the same problem of dentists doing orthodontics.

Macau Association of Orthodontists

As we do not have dental school in Macau, all our dentists and specialists come from different country. Macau government is going to set up a licensing examination as a prerequisite for dentist registration.

New Zealand Association of Orthodontists

The ongoing and escalating issue of general dentists promoting orthodontic treatment has blurred the distinction between orthodontic treatments by specialist and general dentist. As a consequence, the public of New Zealand often does not know the difference. Recently, NZAO has embarked upon a public awareness campaign to explain the differences between the orthodontic specialist and general dentist by highlighting evidence-based orthodontic treatment planning. In addition, NZAO has launched a public health initiative where specialist's orthodontic treatment is provided to children who would not be unable to access such care. This has been organized through "Wish For A Smile Trust" and is aimed at children with severe malocclusions and who have limited financial resources.

Pakistan Association of Orthodontists

Usually, orthodontists are also doing general dentistry as referral system is not strong. Same is a problem as they refer patient, it is mostly not referred back.

Thai Association of Orthodontists

Normally, dental schools and hospitals provide consultations from dentists or orthodontists in private clinics when there are difficult cases or cases which needed cooperation such as orthognathic surgery, CLP treatment, distraction osteogenesis and so on.

Future plan of each affiliate society

The extreme goal of each society is to enhance the academic and clinical levels of orthodontics. To this end, research activity in both scientific and clinical aspects is of most importance or indispensable. In addition, we APOS may have to assist the developing societies in terms of the education for scientific knowledge and clinical skills in orthodontics according to requests from some affiliate societies. Actual plan of each society is presented herein for a special reference to all the APOS members.

Association of Orthodontists Singapore

A very experienced orthodontist once told me. "Never stop learning. The day you stop learning would be the day you retire." I totally believe in this adage, and I would like to convey this to the rest of my orthodontic colleagues in Singapore and the region. I still have much to learn.

Association of Philippine Orthodontists

Future plans of APO as a scientific association is to continue keeping ourselves up to date with the latest in dental and orthodontic technologies, to strengthen the graduate programs in the country, to enthuse more faculty members and to have more graduate schools accredited. The APO is also committed in supporting financially the research studies conducted by the graduate students of the accredited orthodontic program in the Philippines.

Bangladesh Orthodontic Society

Recently, overall clinical dentistry and orthodontics have improved a lot, and we are capable of rendering clinical

service almost similar to regional and global standards. We need to improve our research capability. However, adequate fund is required, which is a great limitation for us.

Chinese Orthodontic Society

To improve orthodontic education continuously, the development of orthodontics depends on the improvement of education. Besides of strengthening the international competitive power of famous dental school, we try to improve overall orthodontic education quality in the whole country.

To enforce the international exchange and cooperation of COS, to send more students to foreign famous school and to invite the foreign student to our school; i.e., to set up more international cooperation project; to take part in more foreign project actively and so on.

To minimize the gap between urban and rural and to try to lead specialists to work in the rural area; to improve the continuous education and so on.

To improve the orthodontic specialist certification system further, at the basis of a combination of local situation and foreign experiences.

To focus on independent research and development of orthodontic materials. To improve the international competitive power of the Chinese Orthodontic Industry.

Hong Kong Society of Orthodontists

The HKSO will continue to increase our effort in patient education and awareness of the excellent orthodontic service we could provide to the children and adult patients. We will continue to host annual orthodontic symposium amongst local orthodontists to improve our member relationship and knowledge. We will work closely with Hong Kong University and provide the best support to the trainee during the long training pathway.

Indonesian Association of Orthodontists

One of the IAO goals is to improve the knowledge and clinical skills of its members, by bringing world speaker to speak to our members.

Indian Orthodontic Society

India has made rapid strides in all spheres in the last two decades. It is a must see destination for a lot of tourists and pilgrims alike. With respect to orthodontics in India, we have a large base of orthodontic education with close to 100 masters programs in orthodontics globally. However, we are concerned about the private practice scenario where the financial health of Indian orthodontist needs to be improved. The quality of treatment, we have noticed is higher in segments, where the treatment fees are on the higher side, which is obvious.

This is a question very close to my heart. IOS has made rapid strides in the past and celebrated the Golden Jubilee year (50th anniversary). Some of the notable achievements that I've been a part of are the IOS Newsletter, working toward getting our Journal indexed, being a part of the team that formed the Research Foundation of the IOS. We have formed a Council for Scientific Affairs. We are looking at administrative reforms soon to cater to our large numbers.

On the academic front, we have also founded an Educators forum of the IOS that will deliberate training across the country, and recommend skills and information that are current.

We have initiated a massive public awareness program to increase awareness about orthodontics, and treatment of orthodontic problems by a qualified specialist to the Indian population. We also see a greater role of IOS on the international arena both in the academic and social aspects.

Macau Association of Orthodontists

As a scientific association specific to orthodontics, we would like to organize more continuing education course to improve our knowledge and open our mind to become a high skills clinician. We encourage government for establishing the specialist training system qualified the standard of developed nation and compatible with WFO and APOS standards of orthodontic specialist. We also want to provide more public seminars and conducting educational activities to Macau citizens. We hope that APOS journal will cover more technical and clinical studies or may be some experience sharing in orthodontic field. Education information for the public is also desired.

New Zealand Association of Orthodontists

The NZAO has supported the formation of the Foundation for Orthodontic Research and Education Trust, which provides funds for both undergraduate and PG orthodontic researches in New Zealand. The Sir John Walsh Research Institute based at the Faculty of Dentistry helps to focus research activity. This research is both clinical and laboratory based with strong leadership by the current Head of the Department, Prof. Mauro Farella. He has a special interest in TMJ, genetics (accessing "Zebra fish"), establishing a genetic bank to investigate the role of genetics in craniofacial form and the use of 3D imaging.

If the APOS plays a role in the scientific endeavors of the NZAO, it may be in the form of establishing relationships and collaboration between research institutions and the

Orthodontic Department, Faculty of Dentistry, Otago University.

Orthodontic and Dentofacial Orthopaedic Association of Nepal

ODOAN would really like to improve the quality of orthodontic treatment in Nepal. For this, we are planning to have series of hands-on training from world acclaimed clinicians. ODOAN is thankful to Drs. Kazuo Tanne, Hee Moon Kyung and Nikhilesh Vaid for their great contribution during our 3rd International Conference in September 2013. APOS has been always supportive toward ODOAN.

Pakistan Association of Orthodontists

PAO representatives want to bring their own orthodontic board. We need guidance and support. Pakistani orthodontists are really doing quality work as they get the opportunity to gain extra qualifications by the presentation of their finished cases at other Royal Colleges.

Sri Lanka Orthodontic Society

As you know, presently, we are a small group. We are growing slowly while maintaining a high standard. We look forward to work closely with other APOS friends in order to uplift the quality of our profession. SLOS will be happy if we have a way to exchange and gain knowledge from other APOS nations.

Taiwan Association of Orthodontists

As a member of APOS, TAO will collaborate with all the other members to elevate the standard of orthodontic care for the patients and also communicate with all colleagues of APOS friend associations to uplift the academic level of orthodontics in Asia-Pacific regions, and in turn, all over the world. The orthodontist in Taiwan is officially recognized as a specialist by the government and regulated by the Ministry of Health and Welfare since 2010. TAO will work diligently to elevate the standard of orthodontic care and academic level of orthodontics in Taiwan. These goals will be achieved by accreditation of the training institutes, supervision of the training programs of all training institutes, constant domestic continuing educations, increased international communication via speakers recommended by various friend associations, hosting Taiwan International Orthodontic Forum to catch up the most updated knowledge and techniques in orthodontics and TAO will encourage all the members to attend various international orthodontic conferences to participate the academic progress of orthodontic world.

Thai Association of Orthodontists

ThaAO will continue to do its duties; it is doing now which are to continue the duties (disseminate knowledge in orthodontics and keep a high standard in orthodontic treatment) which will be beneficial to its members, to the public under good moral and ethical bases. The activities, which to be chosen to do or to promote in the future, will be suitable to time and the situations in the future under good moral and ethical bases

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