

The origins of the AO Foundation



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In 1958, a group of Swiss general and orthopedic surgeons established the AO (Arbeitsgemeinschaft für Osteosynthesefragen). Their mission was to transform fracture treatment in Switzerland, which at that point in time included prolonged bed rest in traction and subsequent application of a cast or splint, often resulting in poor functional results and lifelong disability. The “core group” of founders consisted of Maurice E. Müller, Hans Willenegger, Martin Allgöwer, and two other early members, Robert Schneider and Walter Bandi. Today, the AO Foundation (which was officially established in 1984) is a medically guided, global network with over 10,000 surgeons, in more than 100 countries. It is the world’s leading educational and research organization for trauma and musculoskeletal treatment and reflects a global knowledge network and interdisciplinary teamwork. The AO Foundation is founded on the four principles of documentation, teaching, research, and instrumentation. The AO Foundation’s vision is excellence in the surgical management of trauma and disorders of the musculoskeletal system. Its mission is to foster and expand a network of healthcare professionals in education, research, development and clinical investigation to achieve more effective patient care worldwide.



Founded in Biel-Benue, Switzerland
November 6, 1958



THE 13 FOUNDERS

November 6, 1958 in Bienne, Switzerland



Maurice E. Müller



Martin Allgöwer



Walter Bandi



Robert Schneider



Hans Willenegger

Developing early fracture fixation techniques

In the 1950s, when the core group of five Swiss surgeons Maurice E. Müller, Hans Willenegger, Martin Allgöwer, Robert Schneider and Walter Bandi came together, they set out to extensively examine treatment goals. They then decided to develop a system of implants, instruments, and surgical techniques that would allow the reliable treatment of fractures. During this early period, the AO developed a new method involving application of a compression plate and the concept of the lag screw to achieve their goal of rigid internal fixation of fractures. The AO pioneers also realized that immobilization resulted in atrophy of the soft tissues, osteoporosis, thinning of articular cartilage, severe joint stiffness, and, at times, causalgic pain. To prevent these complications and improve the results of fracture treatment, they introduced “*functional after-treatment*.” This concept was based on the observation that when stable fixation of a fracture was achieved surgically, most of the pain was effectively eliminated, which made immediate and full mobilization of the extremity possible. Thus the much-quoted and timeless expression among the AO Foundation members “*Life is movement, movement is life*” was born. The demands on this type of operative treatment were great. The reduction had to be anatomic, and the fixation had to be sufficiently strong, stable, and lasting to allow functional use without the risks of hardware failure, delayed union, nonunion, or deformity. Soft-tissue handling was also of paramount importance since infection should not mar the outcome. In close collaboration with two Swiss manufacturing firms, the AO began an intensive period of development to produce comprehensive new sets of instruments and implants for fracture treatment.

Today, continued development along with clinical testing of new instruments and implants and the creation of educational materials for these products are handled

within the AO Foundation by a system of medical-technical committees: the TK-System. It consists of several specialty Expert Groups and the core Technical Commission (AOTK). Research is one of the pillars on which the success of the AO is based and the network of AO surgeons and scientists actively pursue clinical and laboratory investigations.

A brief history of the Davos Courses

The first ever Davos Course took place on December 10, 1960. Prof Hermann Kraus (1899-1972) from Freiburg, Germany, the first senior surgeon from outside Switzerland to support the AO, was the guest of honor. The first four-day course was led by Maurice Müller and was held at the AO laboratory in Davos with 69 attendees. In 1961, the second AO Course in Davos registered 102 participants. In 1963, the third AO Course was held in German. English and French were introduced at the fourth AO Course in December 1963. The AO Course was extended from four to five days in 1964. From 1966 onwards, the AO Courses were hosted at the newly built Congress Centre in Davos (where they are still held to this day). The first ever Advances Course was also held the same year. Being practicing surgeons themselves, the AO members understood that a large part of the success of their treatment method would be dictated by good cooperation with operating room personnel (ORP). Hence, in 1967, at the Davos Courses, a teaching program for ORP was developed. The AO Foundation Davos Courses are now an annual flagship educational event that attracts 1,700 participants and more than 400 faculties from around the world.

How the Asia Pacific region was formed

The concept of regionalization was born when Prof Marvin Tile was the President of the AO Foundation

(from 1992 to 1994). In November 1994, AO East Asia (AOEA) was founded under the leadership of Dr Suthorn Bavonratanavech, who also became the first chairman of AOE. At the time of its inception the region included Hong Kong, Indonesia, Malaysia, Philippines, Singapore, South Korea, Taiwan and Thailand. Prof S P Chow, the second chairman, spearheaded the growth of scientific activities within AOE and the third chairman, Dr G On Tong united the region of AO Asia-Pacific (AOAP). In 2003 Japan joined AOAP and in November 2006, the AO trustees of the People's Republic of China also became members. Additional momentum built up at the AO courses in 2006 in Davos when Trustees from Australia and New Zealand agreed to join the Asian Trauma Group. At that time, the chairman of AOAP, Dr G On Tong, decided to rename this new body AO Trauma Asia-Pacific (AOTAP). At the Tips for Trainers event in New Delhi in February 2007, the Trustees from India accepted an invitation to join AOTAP. In less than six months, AOTAP became a reality, representing one of the major regions of the AO Foundation.

In the past, Asian surgeons learnt about AO principles and techniques by attending courses in Davos and through visits from AO guest lecturers. Over the past few years, the number of AO courses in Asia has increased significantly because of the availability of Practical Workshop Sets (PWS). Other milestones in the development of the Asia Pacific region include:

- The first issue of the AOAP newsletter in 2000, the launch of the AOAP website in 2001, the formation of study groups in 2003, the first AOAA-Asian Chapter Symposium in Chiang Mai, Thailand, the formation of the ORP group in 2004, and the first combined regional AO courses in Chiang Mai, Thailand in 2006.
- The minimal invasive study group in AOAP published its first book on the subject of minimally invasive plate osteosynthesis (MIPO) in 2006. This marked the first publication of an AO book not originating in Europe and North America.

A history of the AO in Thailand

On 22-24 June 1985, the first AO Basic Course was held in Thailand at Pramongkutklao Royal Thai Army Hospital, followed by another in August of the same year. We encountered lots of problems organizing the course and they should be recorded for the awareness of the younger generation.

Starting from the course name, it was initially prohibited to use the word "AO", which was deemed to be an advertisement, so the course had to be named "*Operative Treatment of Fracture*". When the AO concept and principles became more accepted, then the course name was changed to "*AO Principles of Operative Fracture*

Management" as it is known nowadays. Each training institute wished to have their senior surgeons taking most involvement in the lecture session. In order to reduce conflicts, we attempted to meet their requirements. Problems also occurred with the evaluation as the participants were asked to fill in a form to evaluate each lecturer. Some surgeons complained that we had no right to evaluate them. Nevertheless, the lecturers and their presentation have improved gradually since then.

The greatest difficulty in the course arrangement related to the practical exercises, as there was only one set of instruments for each procedure. So the participants could not simultaneously practice the same exercise. When arranging the course program, we had to set the lectures on Thursday and Friday whereas Saturday and Sunday were for practical exercises. The residents travelling from upcountry would perform the exercises first so that they could travel back for work on Monday. The residents in Bangkok would be allocated to do the exercises on the following Saturdays and Sundays. As a result, the complete arrangement took 4 weeks. Each workshop could only take 18 persons i.e. 2 persons per exercise doing 9 exercises.

In 1994 the AO East Asia (AOEA) was founded and it united a group of orthopedic surgeons from several countries in East Asia with the aim of collaboration for education, teaching, research, etc. The most significant change was the formation of Permanent Workshop (PWS) for the AOE group. There is now availability of the instruments for teaching activities among the member countries without the need to wait for the instruments from Switzerland. This allows flexibility for each country to set the timing of courses, resulting in more convenience and greater benefits. However, in Thailand, the workshop rotation system still has to be utilized as it helps to reduce the costs of instrument procurement. We need only 10 sets of instruments for 20 participants. In the case of 60 participants performing the same exercise in concurrence, there is the need for 30 sets for each of 9 exercise instrument sets. Thus, to let participants rotate to perform 3 exercises at the same time is an economical solution, saving costs by one-third.

The cost of workshop instruments sets of CHF 6 million was the combined investment of Mathys and AO International. I would like to express my gratitude to Prof. Peter Matter who was the President of AO international at that time to take a courageous decision to set up the PWS in East Asia. Since 1995, the arrangement of practical exercises has been the pattern as today's practice and we are very pleased that that this year more instruments have been supplemented. The theory session has been designed to follow the module of Education Commission of AO International to guarantee the teaching is up to worldwide standards. We are

proud to have fought against and overcome problems and obstacles until the AO principles and knowledge of operation for fracture treatment could be widely imparted among instructors, senior surgeons and junior surgeons, resulting in direct benefits to the patients.

Initiation of ORP Course

Accurate and fast surgery in the operating room relies on the capability of several staff members working closely with the surgeons, such as scrub nurses, or nurses who prepare the instruments required during the surgery. Initially, when orthopedic surgeons were not well acquainted with AO instruments; surgeons sometimes said, "*Give me that stuff,*" as they could not correctly name those instruments. Quite often, they asked for the instruments which had strange names such as lizard-mouth forceps, weight device, etc. If the nurses were not aware of the required instruments, they then sent the whole tray of instruments to the surgeons for selection. The lack of knowledge of the function of each instrument and the failure to understand the surgical steps caused tremendous problems in the surgery. Consequently, both surgeons and nurses got upset and frustrated, resulting in negative results for the patients. These problems would not have arisen if they had mutual understanding and had worked as a team.

This is what led me to decide to teach a few nurses in the OR of Maha Vajiralongkorn Building by looking at the pictures in books and some available slides. I explained about the structure of screws, the application of various sizes of drills, the use of lag screw, types of plates and other existing instruments. Having acquired more understanding, the nurses then were able to prepare everything correctly before the operation and accurately send the instruments during the surgery, which eased the operating work a lot. Besides, once senior nurses acquired more profound understanding, they then naturally imparted this knowledge to their juniors. When the nurses at Maha Vajiralongkorn Building became more confident, I knew it was time to disseminate information and knowledge to nurses in other hospitals too.

The Orthopaedic Department of Pramongkutklao Hospital then organized the first AO Course for ORP in May 1985. The OR nursing lecturers were very excited as it was new for them to speak in front of an audience. They rehearsed the lectures several times beforehand to ensure accurate content, nice pictures, and an interesting presentation. I had to observe their rehearsals and listen to the lecture both to support them and to guarantee that the lecture content was correct. The biggest difficulty for the

nurses was to overcome their fearful tension before giving their first talk. Early on there was just the instrument presentation and demonstration. Later when there was increasing number of instruments, the nurses had the opportunity to perform practical exercises just like the surgeons, resulting in better understanding of instrument usage.

I would like to express my sincere appreciation to Ms. Rigmor Texhammar, Director of ORP education in Thailand, who gave us full support and her successor, the late Ms. Anne Murphy who came to our course many times, and was convinced that Thailand's ORP education became a model for Asia. Ms. Susanne Baeuerle who is the present Director of ORP Education attended the ORP course in 2003 and had the same impression as Anne. Recently, nurses from other hospitals who share a passion for teaching have joined the team as lecturers and table instructors. In addition, the demand for attending the ORP Course has increased every year which led us to conducting 2 courses a year.

Nevertheless, we still haven't been able to satisfy the increasing demand. There are around 300 hospitals of which the operating rooms are equipped with AO instruments. If each hospital sends only one nurse to attend the course, the number of nurses attending per year would reach 300. However, we can accept only 60 participants at a time, and 120 in total every year. No matter where the course is organized, the strong intention still remains unchanged. Now is the time when the younger generation of surgeons needs to step forward and take on the responsibility of continuing to run the ORP courses. Assisting the nurses by continuing to help with their education will ensure that surgeons and nurses can work efficiently as a team for the sake of the best patient outcomes.

In summary AO Foundation is a medically oriented non-profit organization with international research and educational activities, led by specialized surgeons. Its mission is to promote medical advances and further improve patient care in the fields of trauma surgery, orthopedics and diseases of the musculoskeletal system. The AO mission is to foster and expand our network of healthcare professionals in education, research, development and clinical investigation to achieve more effective patient care worldwide. Education remains one of the pillars since the first course in 1960, 352,067 surgeons from 124 countries and 146,929 operating room personnel from 73 countries have participated in an AO Course. There are more than 10,000 AO surgeons worldwide in different regions who work voluntarily to propagate the AO philosophy which is to continuously improve the care given to our patients.



Practical exercise was organized during the week end.

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