“Transforming Surgery—Changing Lives”
AO Vision and Mission
AO Vision

Our vision is excellence in the surgical management of trauma and disorders of the musculoskeletal system.

AO Mission

Our 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.
Short profile

• Medically guided, global network of surgeons

• World’s leading educational and research organization for trauma and musculoskeletal treatment

• With more than 10,000 surgeons, in more than 100 countries, one of the most important and extensive networks in medicine

• Global knowledge network—interdisciplinary teamwork

• International faculty of over 3,000 experts
“The first 50 years”
Historical milestones
The founders of the AO

Maurice E Müller  Martin Allgöwer  Walter Bandi  Robert Schneider  Hans Willenegger

Ernst Baumann  Fritz Brussatis  August Guggenbühl  Willy Hunziker

Walter Ott  René Patry  Walter Schär  Walter Stähli
A medical revolution

• 1958: Foundation of the „Arbeitsgemeinschaft für Osteosynthese / AO“ (Association for the Study of Internal Fixation) in Biel/Switzerland by 13 visionary surgeons

• Revolution in trauma care and treatment of musculoskeletal disorders worldwide

• Principles of osteosynthesis:
  - established by those pioneers
  - further developed over the past 50 years
  - today: golden standard in modern trauma and orthopedic surgery
The AO Principles

- Fracture reduction and fixation to restore anatomical relationships
- Stability by fixation or splintage, according to the personality of the fracture and the injury
- Preservation of the blood supply to soft tissues and bone by careful handling and gentle reduction techniques
- Early and active mobilization
Patients recover more quickly and suffer less pain

The ultimate aim of the AO Principles is to achieve:

• full functioning of the operated body part and
• complete rehabilitation
Historical milestones (1/3)

Selected milestones in the history of AO—and the world at large

- **1958**
  - First crossing of Antarctica by Sir Vivian Fuchs.

- **1959**
  - Invention of the Microchip.

- **1960**
  - Introduction of the birth control pill.

- **1961**
  - Soviet cosmonaut Yuri Gagarin is the first human in space.

- **1963**
  - Martin Luther King delivers his famous “I Have A Dream” speech.

- **1969**
  - The Woodstock Festival marks the climax of the hippie era.

AO is established in Biel, Switzerland.

Establishment of the Laboratory for Experimental Surgery and AO Documentation.

First AO Course in Davos.

Establishment of AO Technical Commission.

First AO ORP Course held in Switzerland.

First AO Course in North America; establishment of AO Vet.
Historical milestones (2/3)

1972: First AO Course in Latin America; establishment of AO International.


1977: First AO CMF Course held in Davos.

1979: First AO Course in Asia Pacific.

1983: Establishment of AO Research Fund; first AO Spine Course held in Davos.

1984: The Charter of the AO Foundation is signed.

1972: The oil embargo crisis shakes the Western world.

1979: The first home computers and game consoles go on sale.

1983: Invention of the CD-ROM.

1984: Mother Teresa wins the Nobel Peace Prize.

1984: Invention of the CD-ROM.

1984: The human immunodeficiency virus (HIV) is discovered.
Historical milestones (3/3)

1989
The fall of the Berlin Wall marks the end of the Cold War.

1992
In a referendum, a majority of South Africans vote to end apartheid.

2003
The human genome is completely sequenced for the first time.

2004
A tsunami hits South-East Asia, evoking an unparalleled global relief effort.

2006
715 million people worldwide watch as Italy wins the 2006 FIFA World Cup in Germany.

2008
France celebrates the 50th anniversary of its constitution.

Establishment of the AO Alumni Association.
Opening of AO Center in Davos and establishment of the AO Development Institute.
Establishment of AOSpine and the AO Biotechnology Advisory Board.
The Academic Council launches the four Clinical Priority Programs.
AO and Synthes, Inc. renew their cooperation.
50th anniversary of AO.
“Meeting emerging requirements”
AO Specialties
Overview Specialties

- AOVET
- AO CMF
- AO TRAUMA
- AO SPINE
Home to Trauma & Orthopedics

• Creates a dynamic environment
• Fosters regional and national teams to run educational, research, and community development activities
• Creates leadership opportunities for senior Trauma surgeons
• Nurtures opportunities for younger future leaders
The AOSpine community—delivering the knowledge, experience, and evidence to improve patient care, patient outcomes, and ensure cost effective spine surgery.
Global network of surgeons, scientists and other relevant groups, highly specialized in the field of craniomaxillofacial surgery.

Advances the practice of operational CMF surgery worldwide.

Unites experts from subspecialties: oral and maxillofacial surgery, plastic surgery, head and neck surgery, ophthalmology, neurosurgery, and general surgery.
First surgical AO specialty established in 1969 as a Swiss association with international membership.

Concentrates its efforts in the continuous development and improvement of new implants and instruments, courses for small and large animals, as well as AOVET fellowships.
“Growing network, enduring spirit”
The AO network
The AO world

- 10,000 individuals with a common vision
- Organized in Specialties, Regions, Sections, Chapters
- Projects in 20 less developed countries
Socio Economic Committee (SEC)

Mission Statement of SEC:

“…its primary **emphasis** is on **provision** of and **support** for **education**, taking into consideration the restricted economic environment of identified regions.”
AO Socio Economic Committee (SEC)

J Croser (Chairman)
Asia Pacific

RK Shah
Asia Pacific

JS Franco
Latin America

S Bäuerle
ORP Worldwide

P Demmer
Africa

J Harrison
Africa

S Terver
Africa/Francophone countries

J Prein
Africa/Francophone countries
Operating Room Personnel (ORP)

- AO Courses, AO Workshops
- AO Fellowship for ORP
- AO ORP Alumni Chapter, international faculty group
- Education seminars for faculty members
- ORP educational material
The **AO Foundation** is a medically oriented nonprofit 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 partnership between surgery and **Synthes, Inc.** dates back to the very beginning of the AO. Synthes is a leading global medical device company which develops, produces and markets instruments, implants and biomaterials for the surgical fixation, correction and regeneration of the human skeleton and its soft tissues.
Objectives

• Provide surgical community with a comprehensive package of cutting-edge technologies and services—for the benefit of patients worldwide

• Foster open innovation:
  • Surgeons need solutions for clinical problems, which they cannot solve alone
  • AO Foundation offers access to medical network, know-how, and professional exchange
  • Industrial partner—together with Research and Development—as powerful player delivers ‘hardware solutions’ (implants, instruments)
  • Volunteers’ network of AO surgeons approves quality and certifies Synthes medical products for clinical use
  • AO Foundation educates the surgical community worldwide on up-to-date principles and techniques, latest findings and current technology
Collaboration along the value chain

Joint research activities

Educational activities

Financial and logistical support

Assess quality, safety, functionality of implants

Quality assurance & certification

CME compliant education

Clinical work

Applied/translational research

Clinical investigation

Approval

Education

Financial support

Exploratory research

Manufacturing and Sales

Product Development

AO Foundation

SYNTHESES
Roles of the partners

AO Foundation

Clinically independent, surgeon driven knowledge network, providing clinical know-how and access to one of the most important and extensive networks in the field of medicine with more than 10,000 member surgeons and an international teaching faculty of over 3,000 experts worldwide.

SYNTHERES

Major industrial partner to put ideas from the worldwide AO network—instruments, implants, and biomaterials—into clinical practice through development, manufacturing and global distribution.
Further industrial partners

BrainLAB

Since 2004, the AO has a license and cooperation agreement with BrainLAB, a leading innovator in image-guided medical technology. BrainLAB participates in the AOTK Expert Group system and partners the AO in its worldwide Advances Course activities.

SIEMENS

Siemens Medical Solutions is one of the world’s largest suppliers to the healthcare industry. In 2007, the AO and Siemens signed an agreement to make digital imaging techniques a standard part of global AO training programs for surgeons.

This cooperative agreement enables the more than 20,000 surgeons who annually participate on AO courses worldwide to improve their levels of patient care using the latest medical technology.
“Strengthening the value chain”
Key activities
AO value chain
AO Education
Educational channels

Face to face: Courses & fellowships
Journals
Books
Audiovisuals
AO Portal: eLearning
AO Courses

Since 1960

• 325’212 surgeons from 124 countries and
• 140’451 operating room personnel from 73 countries have participated on an AO Course

Since the early days, AO Courses have included practical exercises and implemented the latest know-how in the field of adult learning.
## AO Courses 2009 (by Specialty)

<table>
<thead>
<tr>
<th>Courses</th>
<th>Courses</th>
<th>Surgeons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principles of fracture treatment</td>
<td>106</td>
<td>6,290</td>
</tr>
<tr>
<td>Advances in fracture management</td>
<td>56</td>
<td>5,249</td>
</tr>
<tr>
<td>Pelvis &amp; acetabulum courses</td>
<td>12</td>
<td>584</td>
</tr>
<tr>
<td>Hand courses</td>
<td>24</td>
<td>1,374</td>
</tr>
<tr>
<td>Foot and ankle courses</td>
<td>17</td>
<td>826</td>
</tr>
<tr>
<td>Spine courses (incl. seminar/symposia)</td>
<td>94</td>
<td>4,174</td>
</tr>
<tr>
<td>Craniomaxillofacial courses</td>
<td>65</td>
<td>3,890</td>
</tr>
<tr>
<td>Pediatric trauma course</td>
<td>9</td>
<td>1,170</td>
</tr>
<tr>
<td>Symposia &amp; Seminars on general trauma</td>
<td>69</td>
<td>2,960</td>
</tr>
<tr>
<td>AO SEC Courses and Seminars</td>
<td>15</td>
<td>723</td>
</tr>
<tr>
<td><strong>Total (excluding ORP)</strong></td>
<td><strong>467</strong></td>
<td><strong>27,240</strong></td>
</tr>
</tbody>
</table>

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**AO Foundation**
AO Faculty network

AO Education can call on more than 3,000 surgeons and ORP who volunteer worldwide in the teaching of colleagues and ORP. They disseminate the theoretical and practical basics of operative fracture management according to AO Principles.

The courses are characterized by an open exchange between participants and faculty during the many practical exercises and group discussions. In this way important knowledge transfer occurs.
AO teaching activities 2009 (by Region)

Total: 571
Fellowships 2003–2008

- AO Fellowship program: orthopedic surgeons, general surgeons or ORP spend 4–12 weeks in designated host clinics.
- The purpose is to make fellows familiar with indication, planning, techniques, and pitfalls of osteosynthesis.

<table>
<thead>
<tr>
<th>Region</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>48</td>
<td>50</td>
<td>42</td>
<td>42</td>
<td>53</td>
</tr>
<tr>
<td>USA/Canada</td>
<td>19</td>
<td>28</td>
<td>22</td>
<td>27</td>
<td>25</td>
</tr>
<tr>
<td>Latin America</td>
<td>35</td>
<td>32</td>
<td>23</td>
<td>22</td>
<td>15</td>
</tr>
<tr>
<td>Middle East/Africa</td>
<td>29</td>
<td>36</td>
<td>42</td>
<td>27</td>
<td>32</td>
</tr>
<tr>
<td>Asia Pacific</td>
<td>109</td>
<td>96</td>
<td>109</td>
<td>53</td>
<td>79</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>249</strong></td>
<td><strong>248</strong></td>
<td><strong>247</strong></td>
<td><strong>182</strong></td>
<td><strong>213</strong></td>
</tr>
<tr>
<td><strong>ORP</strong></td>
<td>9</td>
<td>6</td>
<td>9</td>
<td>11</td>
<td>9</td>
</tr>
</tbody>
</table>
AO books published in 2009 / 2010

1. **Elbow and Forearm**
   - AO Manual of Fracture Management

2. **Orthopaedic Trauma Care**
   - Piet de Boer
   - Steven J. Morgan
   - Christian van der Werken
   - Thieme

3. **Techniques and Principles for the Operating Room**
   - AO Institute

4. **Statistics and Data Management**
   - Dirk Stengel
   - Mohit Bhandari
   - Bente Hansen
   - Thieme
AO journals (1/3)

- **Orthopedic Trauma Directions**: bimonthly publication exploring latest advances in orthopedic traumatology through evidence reports
- **TK News**: information on new devices for Trauma and CMF
- **AO Dialogue**: general information about the AO Group and issues of interest in orthopedics and trauma care.
AO journals (2/3)

• **Injury Supplement**: internationally renowned academic journal dealing with the fields of trauma care and accident surgery. Two publications per annum

• **European Cells & Materials (ECM)**: international scientific peer reviewed open-access journal in the area of implants, bone and connecting tissues. Indexed in Medline. Continual online publication
**AOSpine journals (3/3)**

- **InSpine**: global magazine for the spine community; popular and varied mix of topical news items, controversial spine-related questions, legal and practice management issues. Four publications per annum

- **myAOSpine Magazine**: entertaining community magazine exclusively for subscription members. Two publications per annum

- **Evidence Based Spine Surgery—EBSS**: a unique journal in the spine world that explores the latest advances in spine care based on evidence reports. Four publications per annum
AO Portal
www.aofoundation.org

Transforming Surgery—Changing Lives

Board of Trustees Meeting, July 9 – 12, 2010 Lisbon, Portugal
Lisbon played host to one of the largest Trustees Meetings ever, with nearly 400 participants and quests contributing to the successful event.

AO Research Institute Davos hosts the summit of European Orthopaedic Research
The 10th annual EOPS conference took place in Davos June 30 to July 2, 2010

AO Teaching Videos
AO CID
AO Alumni Association

News
2010-07-27
The eCMX1 Cartilage Disc: Repair and Regeneration conference held in Davos
The 11th European Cells and Materials conference took place from June 28-30, 2010
AO Surgery Reference

www.aosurgery.org

AO Surgery Reference:
• Portal to, and repository of, surgical knowledge
• Available through the Internet
• Free access
• Describes the complete surgical management process from diagnosis to aftercare for all fractures of a given anatomical region

 Provides access to:
• Step-by-step descriptions of hundreds of surgical procedures
• Surgical decision making support
• Hundreds of instructional videos
• Hundreds of pages of book chapters, journal articles, studies, etc. recently published in other contexts
AO Research Institute Davos
Structure
AO Research Institute Davos
Musculoskeletal Regeneration
AO Research Institute Davos
Musculoskeletal Infection

Infection resistance
Materials
Devices

In vitro testing

Animal models and study design

Histological preparation

Project partner

Validation / reports / publications, move to next part of value chain

Analysis

AO Foundation
AO Research Institute Davos
Innovations

Thinking different
trend spotting

Research technology

methods based research

IP rights, publications, products

Skill training technology
AO Research Institute Davos
Biomedical Services
AO Clinical Investigation & Documentation

• Full service Clinical Research Organization
• Providing evidence based clinical research and services
• Full study outsourcing or customized packages

Clinical Research

- IDEA
- PLANNING
- ANALYSIS
- MONITORING
- PUBLICATION

Services

Methodology: Study design, statistical plan, sample size, randomization sequence, outcome parameters.

Literature: Simple/extended search or systematic literature review.

Teaching / Training: Education of study nurses / surgeons, Teaching in evidence based orthopedic surgery, presentations.

Medical writing / Reviewing: Partial / entire manuscript, Publication advice, Critical appraisals & reviews of study documents.

Advisory / Consultancy: From expert to full consultancy advice for regulatory submissions.
AO Clinical Investigation & Documentation
39 ongoing studies in 244 clinics with 6307 patients enrolled

Worldwide AOCID presence since 1994*

79 clinical studies
6307 enrolled patients
257 participating clinics

Type of external requests

- 357 Methodological Services
- 210 Literature Services
- 118 Publication Services
- 108 Teaching activities
- 225 Other services

= 1018 External Service Requests

(as per 12.02.2009)
AO Classification Supervisory Committee

Tasks of the AO Classification Supervisory Committee and the Classification Groups:

- Development and validation of classifications:
  - pediatric long bone fractures
  - craniomaxillofacial fractures
  - scapular fractures
  - spine injuries

- Development of the **AO COIAC** documentation software:
  a PC-based software of the AO injury classification systems
TK System
Clinically guided development with industrial partners
TK System: Organization
Governance of the TK System (1/2)

TK Executive Board:

• steering & supervising board of the TK-System
• election of members of Specialty AOTKs
• coordination between specialties

AOTKs:

• product approval for relevant specialty
• election of Specialty EG members
• coordination of Specialty EGs
• ensure teaching of newly approved products
Governance of the TK System (2/2)

Expert Groups / Working Groups / Task Forces:

- definition of clinical priorities
- selection of relevant projects, project teams, and test clinics
- medical guidance & supervision of product development/method application
- preparation of teaching materials for new products
AO Technical Commissions (AOTK)

Product approval

- The AOTKs are the only bodies empowered to approve a device (product) or method (technology) as a SYNTHES® product
TK System: Milestone Concept

Phase -A
Idea Phase

Phase A-B
Definition Phase

Phase B-C
Realization Phase

Phase C-D
Introduction Phase

Milestone A
Project Definition selection of:
- Medical Godfather
- Tech. Project Leader
- Group Members
- Product Name

Milestone B
Design Freeze
Likely approval category
Teaching responsibility
Clinical testing responsibility
Navigation applicable?

Milestone C
Approval by the AOTK

Milestone D
Success Control

AO Expert Group
AOEG / AOTK
“Dedicated to the AO Mission”

AO Governance
Overview

- Integrity and strict governance are paramount for AO as a medically guided nonprofit organization
Organizational structure

Board of Trustees

Academic Council (AcC)
- AOTrauma International Board
- AOSpine International Board
- AOCMF International Board
- AOVET International Board

Board of Directors (AOVA)
- Executive Management (AOEM)
  - AOTrauma
  - AOSpine
  - AOCMF
  - AOVET

- ARI
- AOCID
- TK Office
- AO Education
- Support Units

AO Exploratory Research Board
- AO R&D Committee
- AOCID Committee
- TK Executive Board
- AO Education Platform
The Board of Trustees

- „AO parliament“
- 165 leading surgeons from around the world
The Presidents of the AO Foundation

M Allgöwer 1984 - 1992
M Tile 1992 - 1994
S Weller 1994 - 1996
C Colton 1996 - 1998
P Matter 2000 - 2002
R Marti 2002 - 2004
J Kellam 2004 - 2006
C vd Werken 2006 - 2008
P Manson 2008 - 2010
N Haas 2010 - 2012
The Academic Council (AcC)

- The Academic Council establishes the AO Foundation’s medical and scientific goals and is responsible for strategic and mid-range planning.
- Elected by the Board of Trustees, it has 21 members and is supported by four Specialty Academic Councils, specialized steering boards, and other ex-officio members.
The Board of Directors (AOVA)

• The Board of Directors is responsible for the business conduct of the AO Foundation, ensuring implementation of the goals and proposals of the Academic Council

• Comprises eleven surgeons and three Synthes representatives
AO Governance

Board of Directors (AOVA) (1/4)

N Haas
President
Chairperson

J Quintero
President-Elect
Chair Education Platform

P Manson
Past-President
AO Governance

Board of Directors (AOVA) (2/4)
Representatives of the AO Specialties

S Bavon-ratanavech
JP Cabassu
M Ehrenfeld
P Hoffmeyer
M Janssen
E Johnson
L Vialle
M Wagner
AO Governance

Board of Directors (AOVA) (3/4)
CEO and Vice-Chairperson

R Jeker
Permanent guest

L Kreienbühl
COO
AO Governance

Board of Directors (AOVA) (4/4)
Representatives of Synthes Inc. (delegated by Synthes Inc.)

R Brönnimann  M Orsinger  C Römer

• No voting rights
• No terms

Frequent guest:
• HJ Wyss
AO Executive Management (AOEM)

- AO Executive Management implements the decisions taken by the AOVa, and supervises the activities of the operational functions
- Consists of the CEO and line managers responsible for operational management within their respective areas

R Jeker
CEO

L Kreienbühl
COO

C Albers
TK System

A Baumann
AOSpine

T Hüttl
AOCMF

C Martin
AOTrauma

RG Richards
R&D

U Rüetschi
AOE

B Hanson
AOCID
AO Center Davos

- Operational headquarters
- AO Research and Development, AO Clinical Investigation, AO Technical Commission, AO Education, Management & Logistics
Financial Report 2009 (1/3)
Financial Report 2009 (2/3)

AO Foundation fund allocation 2009

- AO R&D
- AO Spine
- Regional Foundation Activities
- AO Management & Trustees Activities
- AO Central Infrastructure
- AO Education & Publishing
- Technical Commission
- AOCMF
- AOTrauma
- AOVET
- Unseen

in million CHF

0
5
10
15
20
Financial Report 2009 (3/3)

Number of employees (based in Switzerland)

<table>
<thead>
<tr>
<th>Year</th>
<th>Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>200</td>
</tr>
<tr>
<td>2006</td>
<td>230</td>
</tr>
<tr>
<td>2007</td>
<td>245</td>
</tr>
<tr>
<td>2008</td>
<td>239</td>
</tr>
<tr>
<td>2009</td>
<td>232</td>
</tr>
</tbody>
</table>

Employees by institute/Specialty 2009 (full-time equivalents based in Switzerland)

- AO Research: 29%
- AO Education and Publishing: 16%
- AO Central Infrastructure: 14%
- AO Management and Trustees: 12%
- Clinical Research: 10%
- AOSpine: 10%
- AOTrauma: 7%
- Technical Commission: 2%
- AOCMF: 1%
- Regions: 1%
- AOVET: 0%
AO Foundation—a global network of surgeons and healthcare professionals