AO Course
Principles in Operative Fracture Management

December 1-3
Mombasa, Kenya

2007
A word of welcome

Welcome to the AO Course in Mombasa

The Socio Economic Committee (SEC) represents the social conscience of the AO Foundation (AOF), an international non profit surgeon-driven organization. Its primary goal is to improve the care of the injured in developing countries by conducting or facilitating teaching events - such as this course - and programs as well as by supporting the training of individuals involved in the programs. There is close collaboration with AO Education (AOE) which is the education branch of the AO Foundation. Through teaching it disseminates the AO principles and philosophy of fracture management to trauma surgeons and operating room personnel. It coordinates instructional courses all over the world to improve the care of trauma patients.

This course can be offered to you thanks to the excellent and constructive support we have received from the national organizing committee. Together we have designed an AO course suited to the regions requirements.

We would like to thank all those faculty members who dedicate a lot of time away from their hospitals and homes to come and teach on AO courses to improve patient care. We hope that your expectations for this course will be more than met and that every one of you will return home enriched with new knowledge and skills to help us meet our ultimate goal—improving patient care.

Piet de Boer, MA, FRCS
Director AO Education
Switzerland

Paul J Demmer
Chairman of the SEC
Member of the Board of Trustees - Africa
Dear delegate

I have great pleasure in welcoming you to the Serena Beach Hotel, Mombasa, Kenya, for the fifth annual ECSAOA/AO-SEC Course ‘Principles in Operative Fracture Management’ to be held here.

Each year the courses have got better, and this year you have the great honour to participate in this learning experience. Please ask lots of questions and interact freely so you can get the most out of it. All faculty members are available to you. We trust you will then share good practices in your hospital and benefit many patients.

We are delighted to welcome an outstanding local and international faculty, and to thank Synthes RSA for technical support in the practicals. We are most honoured to have three Heads of Teaching Units from South Africa and Prabodh M Desai from India with us.

Paul J Demmer, Chairman of the Socio Economic Committee, is international course director and leads the faculty.

Special thanks go to the Socio Economic Committee of the AO Foundation in providing the financial backing of the course.

Edward Ambeva
Local Course Chairman
Mission statement of AO Education

Our mission is to continuously set standards in postgraduate medical education and encourage the sharing of medically guided expertise in a worldwide network of healthcare professionals to improve patient care in trauma and disorders of the musculoskeletal system.
AO Course
Principles in Operative Fracture Management

Structure

This course provides fundamental knowledge in the operative treatment of fractures according to the AO Principles.

Structure of the course:

- Presentations
- Practical exercises
- Group discussions

Content

This course will address:
- Fracture healing
- Bone biology
- Concepts of absolute and relative stability
- Treatment of shaft fractures
- Treatment of articular fractures
- Soft-tissue management
- Perioperative problems and complications in fracture care
- Hands-on exercises with artificial bones to apply the techniques and promote familiarization with the instrumentation
- Interaction between faculty and participants to clarify understanding

Learning outcomes

By the end of the course participants will be able to:
- Describe AO principles for the operative stabilization of fracture
- Relate soft-tissue damage, fracture healing, and surgical intervention in the injured patient
- Plan appropriate care for patients in the peri-operative environment
- Anticipate potential pitfalls and intra-operative complications in fracture care
- Formulate systems for maintaining safe standards of practice
- Prepare and use appropriate instrumentation/implants for fracture treatment
- Use professional networks to share ideas, challenge poor practice and provide support
The faculty for this course is composed of international and local surgeons distinguished in the field of operative fracture care.

**International Course Director**
Paul J Demmer

**Local Course Chairman**
Edward Ambeva

**International faculty**
Tende Chagwiza, South Africa
Paul J Demmer, South Africa
Prabodh M Desai, India
FP du Plessis, South Africa
Doron Frantzen, South Africa
Teddy Govender, South Africa
Jim Harrison, Malawi
Klaas Maritz, Namibia
Nicholas Lubega, Malawi
Mac Lukhele, South Africa
Shadrick Lungu, Zambia
James Munthali, Zambia

**National surgeon faculty**
Edward Ambeva
Course organization

Socio Economic Committee
E-mail: sec@aofoundation.org

Contact person
E Ambeva: ambeva@africaonline.co.ke
R Parikh: amiken@africaonline.co.ke
Ch Muia, General Manager, Serena Beach Hotel, Mombasa: cmuia@serena.co.ke

Course information

Course venue
Serena Beach Hotel & Spa
P O Box 90352 – 80100
Mombasa, Kenya
Tel: +254 41 5485721-4
Fax: +254 41 548 5453
www.serenahotels.com

Registration and information desk
Open: 08:00 h

Security
It is compulsory to wear your badge during the course for lectures and workshops

Portable telephones
Please note that it is not permitted to use portable telephones in lecture hall and in workshop room

Insurance
Participants are not insured by the course organizers against accidents or other risks. Personal belongings left in the hotel are the responsibility of the individual participant

Dress code
Casual, no ties

Course language
English
## Program

**Saturday, December 1, 2007**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenter(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:45</td>
<td>Welcome</td>
<td>E Ambeva</td>
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<tr>
<td></td>
<td>Introduction</td>
<td>PJ Demmer</td>
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<tr>
<td>09:00</td>
<td><strong>A. Fracture Basics</strong></td>
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<tr>
<td>09:10</td>
<td>Bone healing and how it is influenced by treatment</td>
<td>PJ Demmer</td>
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<tr>
<td>09:30</td>
<td>Bone – the soft tissue injury: open and closed</td>
<td>T Govender</td>
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<tr>
<td>09:50</td>
<td>Fracture classification: Guide to diagnosis and treatment</td>
<td>PJ Demmer</td>
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<tr>
<td>10:10</td>
<td>Discussion</td>
<td>K Maritz</td>
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<tr>
<td>10:25</td>
<td>Surgical reduction techniques: Direct and indirect</td>
<td>M Lukhele</td>
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<tr>
<td>10:45</td>
<td><em>Tea break</em></td>
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<tr>
<td>11:00</td>
<td><strong>B. Fracture mechanics</strong></td>
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<tr>
<td>11:00</td>
<td>Absolute stability</td>
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<tr>
<td>11:00</td>
<td>Biomechanics and biology of absolute stability</td>
<td>T Chagwiza</td>
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<tr>
<td>11:20</td>
<td>Absolute stability – Screw technique</td>
<td>S Lungu</td>
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<tr>
<td>11:40</td>
<td>Absolute stability – Plate function and technique</td>
<td>J Munthali</td>
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<tr>
<td>12:00</td>
<td>Discussion</td>
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<tr>
<td>12:15</td>
<td><strong>Practical Exercise I</strong></td>
<td>N Lubego</td>
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<tr>
<td></td>
<td>Internal fixation with screws and plates providing absolute stability</td>
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<tr>
<td>13:00</td>
<td><em>Lunch</em></td>
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<tr>
<td>13:45</td>
<td><strong>Practical Exercise II</strong></td>
<td>S Lungu</td>
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<tr>
<td></td>
<td>Fracture mid shaft radius</td>
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## Program

Moderator: P M Desai

### Relative Stability

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>14:30</td>
<td>The biology and biomechanics of relative stability</td>
<td>J Munthali</td>
</tr>
<tr>
<td>14:45</td>
<td>Relative stability – Intramedullary techniques</td>
<td>J Harrison</td>
</tr>
<tr>
<td>15:00</td>
<td>Relative stability – Extra medullary techniques</td>
<td>J Harrison</td>
</tr>
<tr>
<td>15:15</td>
<td>Tension band wiring</td>
<td>J Harrison</td>
</tr>
</tbody>
</table>

Discussion

15:30  

*Tea break*

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>15:45</td>
<td>The locked compression plate – Biomechanics and biology</td>
<td>T Chagwiza</td>
</tr>
<tr>
<td>16:00</td>
<td>The locked compression plate – Clinical applications</td>
<td>T Chagwiza</td>
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</tbody>
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**16:15 Practical Exercise III**  
The principle of the internal fixator using the Locking Compression Plate LCP  
(Demonstration on each of the 5 tables)

17:00  

*End of day one*
Sunday, December 2, 2007

C. Decision Making

Moderator: K Maritz

08:30  Principles of management: The patient and the injury   M Lukhele
08:45  Principles of management: Articular fractures   FP du Plessis
09:05  Principles of management: Diaphyseal fractures   T Govender

09:25  Discussion

09:40  Pre-op planning – Rationale and how to do it   K Maritz
       handing out exercise examples

10:00  Tea break

10:15  Practical Exercise IV   J Munthali
       Spiral fracture distal tibia

11:00  Principles: What have we learned so far?   K Maritz

D. Specific fractures

Diaphyseal Fractures

Moderator: P M Desai

11:30  Femur shaft   N Lubego
11:45  Tibiashiift   T Chagwiza
12:05  Humerus shaft   N Lubego

12:25  Discussion

12:40  Radius and Ulna   K Maritz

13:00  Lunch
# Program

## Articular Fractures

**Moderator:** T Govender

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker</th>
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</thead>
<tbody>
<tr>
<td>14:00</td>
<td>Distal radius fractures</td>
<td>K Maritz</td>
</tr>
<tr>
<td>14:20</td>
<td>Olecranon and Patella fractures</td>
<td>PJ Demmer</td>
</tr>
<tr>
<td>14:40</td>
<td><strong>Practical Exercise V</strong></td>
<td>N Lubego</td>
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<tr>
<td></td>
<td>Tension band wiring of the olecranon</td>
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<tr>
<td>15:10</td>
<td><em>Tea break</em></td>
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<tr>
<td>15:25</td>
<td><strong>Practical Exercise VI</strong></td>
<td>D Frantzen</td>
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<tr>
<td></td>
<td>Demonstration on Table</td>
<td></td>
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<tr>
<td></td>
<td>Intra-medullary nailing</td>
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<tr>
<td>16:00</td>
<td><em>End of day two</em></td>
<td></td>
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# Program

**Monday, December 3, 2007**

Moderator: T Govender

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30</td>
<td>Ankle fractures</td>
<td>J Munthali</td>
</tr>
<tr>
<td>08:50</td>
<td><strong>Practical Exercise VII</strong></td>
<td>S Lungu</td>
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<tr>
<td></td>
<td>Type C malleolar fracture</td>
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<tr>
<td>09:30</td>
<td>Femoral head and neck fractures</td>
<td>D Frantzen</td>
</tr>
<tr>
<td>09:50</td>
<td>Inter-trochanteric fractures</td>
<td>FP du Plessis</td>
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<tr>
<td>10:10</td>
<td><em>Tea break</em></td>
<td></td>
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<tr>
<td>10:25</td>
<td>Sub-trochanteric fractures</td>
<td>M Lukhele</td>
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<tr>
<td></td>
<td>Discussion</td>
<td></td>
</tr>
<tr>
<td>10:45</td>
<td>Distal Femur</td>
<td>FP du Plessis</td>
</tr>
<tr>
<td>11:05</td>
<td>Tibial Plateau</td>
<td>PM Desai</td>
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<tr>
<td></td>
<td>Discussion</td>
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<tr>
<td>11:30</td>
<td><strong>Practical Exercise VIII</strong></td>
<td>N Lubego</td>
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<td></td>
<td>Dynamic hip screw (DHS)</td>
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**E. Special fracture problems**

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:30</td>
<td>Pelvic ring fractures: Assessment &amp; emergency management</td>
<td>D Frantzen</td>
</tr>
<tr>
<td>12:45</td>
<td>Acetabular fractures: Diagnosis &amp; emergency management</td>
<td>D Frantzen</td>
</tr>
<tr>
<td>13:00</td>
<td><em>Lunch</em></td>
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</tbody>
</table>
Program

14:00  **Practical Exercise IX**  
N Lubega/S Lungu

External fixation tibia (DispoFix)
Demonstration:
The application of an AO tubular pelvic external Fixator

Moderator:  
M Lukhele

14:45  Pediatric fractures:– General principles  
T Govender
15:00  Delayed union  
PM Desai
15:20  Infection  
J Harrison
15:40  Summary of the course:  
M Lukhele
Certificates  
PJ Demmer

16:00  **End of the course**
Sponsors

We would like to thank our partner Synthes for their support without which this event would not be possible.