2016 Basic Science Committee
Edward J. Harvey, MD, Chair
Mohit Bhandari, MD; Joseph Borrelli Jr, MD; Aaron Nauth, MD; Todd O. McKinley, MD; Emil H. Schemitsch, MD; Brett D. Crist, MD

Attendees of this activity can earn up to 11 AMA PRA Category 1 Credits™

Target Audience
Academic orthopaedic surgeons, community surgeons with an interest in clinically relevant basic science, basic and clinical researchers, residents and fellows will benefit most from this Basic Science Focus Forum.

Learning Objectives
Upon successful completion of the Basic Science Focus Forum, you will be able to:
- Summarize the complex physiological issues associated with polytrauma patients
- Outline the biomechanical principles in directed fixation for controversial fractures and subluxations
- Identify other musculoskeletal conditions we need to treat in musculoskeletal health
- Describe the changing treatment and diagnostic parameters for critical size bone defects
- Explain the clinical outcome quality associated with patient related scores
- Discuss current concepts in nonunion management

Wednesday, October 5, 2016

7:30 am Introduction
Edward J. Harvey, MD

7:35 am - 8:45 am Symposium 1
Biomechanics-Hot Topics 2016
Moderators: Edward J. Harvey, MD, Brett D. Crist, MD

7:35 am No-Motion, Micro-Motion and Macro-Motion: What is Going on at the Fracture? Mitchell Bernstein, MD
7:50 am Why I Still Use Plates for Intertrochanteric Femur Fractures Mark A. Lee, MD
8:05 am When Should We Weight Bare Lower Extremity Periarticular Fractures: Science behind the Anecdote John D. Adams, MD
8:20 am High Energy Young Femoral Neck Fractures - The Unsolved Fracture Christopher Finkemeier, MD
8:35 am Discussion

8:45 am Refreshment Break

8:55 am - 9:55 am Paper Session 1
Applied Biomechanics
Moderators: Brett D. Crist, MD, Mark A. Lee, MD

8:55 am Overview Brett D. Crist, MD
9:00 am Paper 1
Dynamization of Simple Fractures with Active Locking Plates Delivers Faster and Stronger Healing Relative to Conventional Compression Plating
Michael Bottlang, PhD; Stanley Tsai, MS; Emily Bliven, MS; Brigitte von Rechberg, MD; Julia Henschel, BS; Peter Augat, PhD; Daniel Fitzpatrick, MD; Steven Maden, MD
9:06 am Paper 2
Vascular Anatomy of the Medial Femoral Neck and Implications for Surface Plate Fixation: Preliminary Results
Sara Putnam, MD; Cory Collinge, MD; Michael Gardner, MD; William Ricci, MD; Christopher McAndrew, MD, MSc
9:12 am Paper 3
A Biomechanical Comparison of Intrapelvic and Extrapelvic Fixation for Associated Acetabular Fractures of the Quadrilateral Plate Sharon Babcock, MD; Gregory Gillispie, BS; Philip Brown, PhD; Kyle McNamara, BS; Arun Aneja, MD; Joel Sitzel, PhD; Eben Carroll, MD
9:18 am Discussion

9:28 am Paper 4
A New and More Sensitive View for the Detection of Syndesmotic Instability
Nayla G. Papadopoulos, MD; Georges-Yves Laffamme, MD; Jérémie Méndez, Ing; Stéphane Leduc, MD; Dominique Rouleau, MD; Jonah Hebert-Davies, MD; Marie-Lyne Nault, MD

9:34 am Paper 5
Reducing the Syndesmosis Under Direct Vision: Where Should I Look?
Paul Tornetta III, MD; Mark Yakavonis, MD; David Veltre, MD; Anjan Shah, MD
Wednesday, October 5, 2016, cont’d

9:40 am  Paper 6
Location Location Location: Does the Distance of Fixation from the Plafond Affect Reduction of the Syndesmosis?
Michael Beebe, MD; Kyle Stoops, MD; Sean Lannon, MD; Charles Clark, MD; David Watson, MD; Paul Tornetta, MD; Roy Sanders, MD; Hassan Mir, MD; Anjan Shah, MD

9:46 am  Discussion

9:55 am - Symposium 2
11:05 am  Outside the Bone - What is Happening
Moderators: Emil H. Schemitsch, MD
Stephen L. Kates, MD

9:55 am  Osteoporosis Management: What the Trauma Surgeon Needs to Know!
Stephen L. Kates, MD

10:10 am  The Trauma Patient with a Fracture: Role of Vitamin C and D
Brad A. Petrisor, MD

Sanjit R. Konda, MD

10:40 am  Nonunions: How Important is Nutrition and Medical Management?
Michael D. McKee, MD

10:55 am  Discussion

11:05 am  Refreshment Break

11:15 am - Paper Session 2
11:55 am  The Science of Trauma
Moderators: Edward J. Harvey, MD
CAPT. Eric A. Elster, MD, FACS, MC, USN

11:15 am  Overview
Edward J. Harvey, MD

11:20 am  Paper 7
The Severity of Compartment Syndrome-Associated Microvascular Dysfunction May Be Diminished by the Neutralization of Pro-Inflammatory Cytokines
Erin Donohoe, MB; David Sanders, MD; Aurelia Bihari, MS; Abdel-Rahman Lawandy, MD

11:26 am  Paper 8
The Dose-response Effect of Ketotifen Fumarate on Substance P-containing Nerves Mast Cells and Myofibroblasts in Post-traumatic Joint Contractures
Prism Schneider, MD; Herman Johal, MD; Mei Zhang, PhD; David Hart, PhD; A. Befus, PhD; Paul Salo, MD; Cun-Yi Fan, PhD; Xiangdang Liang, PhD; Kevin Hildebrand, MD

11:32 am  Paper 9
Reamed Intramedullary Nailing Affects Trauma-induced Coagulopathy Based on Thrombelastography
Prism Schneider, MD; Elizabeth Davis, BS; Matthew Galpin, RC; Robert Hudson, BS; Patrick Mitcham, BS; Mark Prasam, MD; Joshua Gary, MD

11:38 am  Paper 10
Compartment Release in Austere Locations (CORAL): A Pilot Study of Tele-surgery for Compartment Syndrome
Max Talbot, MD; Rudolph Reindl, MD; Gregory Berry, MD; Homer Tien, MD; Gerard Slobogean, MD; Edward Harvey, MD; CORAL Collaborators

11:44 am  Discussion

12:15 pm - 1:15 pm  International Industry Lunch

1:25 pm - Symposium 3
2:35 pm  Selected Topics in Trauma
Moderators: Todd O. McKinley, MD
CAPT. Eric A. Elster, MD, FACS, MS, USN

1:25 pm  War Extremity Wounds
Jonathan A. Forsberg, MD

1:40 pm  Clinical Science Learned from War Wounds
Benjamin Kyle Potter, MD

1:55 pm  Advancements in Soft Tissue Techniques
Ian L. Valerio, MD

2:10 pm  Osteointegrated Prostheses
Kevin Tetsworth, MD

2:25 pm  Discussion
2:35 pm - Symposium 4
3:45 pm Fracture Healing Adjuncts - The World’s Perspective

Moderators: Joseph Borrelli Jr, MD
Peter V. Giannoudis, MD

2:35 pm Introduction
Joseph Borrelli Jr, MD

2:40 pm Is there a Role for Allograft?
Gerhard Schmidmaier, MD

2:50 pm Induced Membrane Technique: What Have We Learned?
Peter V. Giannoudis, MD

3:00 pm Titanium Cages: How We Can Enhance Their Success
Ronald W. Lindsey, MD

3:10 pm Intramedullary Lengthening Devices: Do They Always Work?
Christian Krettek, MD

3:20 pm Bone Transport and Treatment of the Docking Site: My Preferred Method
David W. Lowenberg, MD

3:30 pm Discussion

3:45 pm Refreshment Break

3:55 pm - 4:55 pm Paper Session 3
New Approaches for Bone Healing

Moderators: Joseph Borrelli Jr, MD
Peter V. Giannoudis, MD

3:55 pm Overview
Peter V. Giannoudis, MD

4:00 pm Paper 11
Acceleration of Fracture Healing Modulated by Compounds that Stimulate Inducible Nitric Oxide Synthase
Rebecca Rajfer Trueblood, MD; Ayhan Kilic, MD; Su Hlaing, BS; Leah Schulte, MD; Andrew Nevisar, MD; Edward Ebramzadeh, PhD; Monica Ferrini, PhD; Sang Hyun Park, PhD

4:06 pm Paper 12
Doxycycline-Loaded Coaxial Nanofiber Coating Enhances Osseointegration and Inhibits Infection
David Markel, MD; Wei Song, PhD; Shi Tong, MS; Nancy Jackson, PhD; Chris Bergum, MS; Jeffrey Flynn, PhD; Weiping Ren, MD

4:12 pm Paper 13
Three Dimensional Printed Scaffolds for Segmental Defects in Long Bones
Sandeep Pandit, MD; Todd Goldstein, PhD; James Mullen, MD; Mikael Starecki, MD; Lewis Lane, MD; Daniel Grande, PhD; Katy Nellans, MD

4:18 pm Discussion

4:28 pm Paper 14
Investigating an Endothelial Progenitor Cell Dose Response for the Healing of Critical Size Bone Defects
David Ramnaraign, MSc; Charles Godbout, PhD; Emil Schemitsch, MD; Aaron Nauth, MD

4:34 pm Paper 15
The Impact of Surgical Fixation on Fracture Healing: Radiographic Analysis of a Novel Fracture Model in Rats
Alejandro Marquez-Lara, MD; Ian Hutchinson, MD; Thomas Smith, PhD; Anna Miller, MD

4:40 pm Paper 16
Assessment of RIA Filtrate Osteoinductive Potential in an Ectopic in vivo Model
Alexander Wessel, MD; James Stannard, MD; James Cook, DVM; Brett D Crist, MD; Gregory Della Rocca, MD

4:46 pm Discussion

4:55 pm Adjourn for the Day
Thursday, October 6, 2016

7:30 am  Introduction  Edward J. Harvey, MD

7:35 am -  8:25 am  Symposium 5
8:25 am  Patient Related Outcomes- Helpful or Not so Much?
   Moderators:  William T. Obremskey, MD
   Douglas W. Lundy, MD
7:35 am  Are the Currently Available PROs Adequate for Research in Orthopaedic Trauma?
   Thomas F. Higgins, MD
7:45 am  Which PROs are the most Appropriate for Outcomes in Trauma and How Do We Account for the Lack of Pre-Injury Measures?
   William T. Obremskey, MD
7:55 am  Mobility as Validated PRO for an Assessment of General Health
   Janet A. Prvu Bettger, ScD, FAHA
8:05 am  How PROs will be used by Others: Granting Agencies, Insurers, FDA, CMS, NQF
   Mark S. Vrhaps, MD
8:15 am  Discussion

8:25 am -  9:00 am  Paper Session 4
8:58 am  How We Measure Outcomes
   Moderator:  Douglas W. Lundy, MD
8:25 am  Overview
   Douglas W. Lundy, MD
8:30 am  Paper 17
   Does the Modified RUST Score Correlate with the Biomechanical Properties of Bone?
   Evaluation in a Murine Model
   Paul Tornetta III, MD; Margaret Cooke, MD; Amira Hussein, PhD; Jody Litrenta, MD; William Ricci, MD; Jason Nascone, MD; Robert O’Toole, MD; Louis Gerstenfeld, PhD
8:36 am  Paper 18
   Does a Patient’s Self-Reported Ability to Weightbear Immediately After Injury Predict Stability for Ankle Fractures?
   Bonnie Chien, MD; Kurt Hofmann, MD; Mohammad Ghorbanhoseini, MD; David Zurakowski, PhD; Edward Rodriguez, MD; Paul Appleton, MD; John Ellington, MD; John Kwon, MD

8:42 am  Paper 19
   Health-Related Quality of Life Following Operative Management of Open Fractures
   Brad Petrisor, MD; Kyle Jeray, MD; Sheila Sprague, PhD; Paula McKay, BSc; Gordon Guayatt, MD; Stephen D. Walter, BSc; Emil Schemitsch, MD; Susan Liew, MD; Diane Heels-Ansdell, MSc; Sun Makosso-Kallyth, PhD; Mohit Bhandari, MD; FAITH Investigators
8:48 am  Discussion
8:58 am  Refreshment Break

9:05 am -  10:00 am  Symposium 6
10:00 am  The Basics: A Principle Based Approach to Nonunion Management
   Moderators:  Aaron Nauth, MD
   Philipp Leucht
9:05 am  Managing Infection in the Setting of Non-Union
   Paul Tornetta III, MD
9:14 am  Bone Grafting: What is the ideal type?
   Philipp Leucht, MD
9:23 am  Biological Therapies for Non-Union
   Michael J. Gardner, MD
9:32 am  Cell-based Therapies for Non-Union Management
   Mark A. Lee, MD
9:41 am  Metabolic Workup of Non-Union
   Mark R. Brinker, MD
9:50 am  Discussion
10:00 am -  11:00 am  Paper Session 5
11:00 am  New Approaches to Healing
   Moderators:  Aaron Nauth, MD
   Philipp Leucht, MD
10:00 am  Overview
   Aaron Nauth, MD
10:05 am  Paper 20
   Selective Serotonin Reuptake Inhibitors Impair Fracture Healing
   Vivian Bradaschica Correa, DDS; Devan Mehta, BS; Anna Josephson, BS; Jason Huo, BS; Matthew Mizrahi, BS; Kenneth Egol, MD; Philipp Leucht, MD
10:11 am  Paper 21
   Pharmacokinetics of Depot Administered Vancomycin Powder in a Rat Femur Fracture Model: Retention Time is Brief
   Zachary Working, MD; Hunter Frederiksen, BS; Alex Drew, BS; Catherine Loc Carrillo, PhD; Erik Kubiak, MD
Thursday, October 6, 2016, cont’d

10:17 am  Paper 22
The Effect of Timing of Aminobisphosphonate Therapy on Fracture Healing: A Rabbit Osteoporosis Model
Jesse Otero, MD; Rory Metcalf, BS; Nicole Watson, PhD; Emily Peterson, DVM; Douglas Fredericks, MD; Michael Wiley, MD

10:23 am  Discussion

10:33 am  Paper 23
Propionibacterium Acnes Colonization Impairs Fracture Healing in a Rat Model of an Open Femur Fracture Treated with Intramedullary Fixation
Robert Duer, MD; Mark Longwell, BS; Michael Florack, MD; Laura Nistico, PhD; Daniel Altman, MD; Gregory Altman, MD; Rachael Kreft

10:39 am  Paper 24
Impedance Measurements Correlate to Callus Maturation of Mice Tibia Fractures
Monica Lin, BS; Frank Yang, BS; Safa Herfat, PhD; Chelsea Bahney, PhD; Michel Maharbiz, PhD; Meir Marmor, MD

10:45 am  Discussion

11:00 am  Adjourn to Industry Symposia

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Are you interested in joining OTA colleagues to participate in a research study group and/or multi-center clinical research project?

If the answer is yes, join us for an OTA Research Town Meeting!

Wednesday, October 5, 2016
6:00 pm – 7:00 pm
(Room TBD)