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Christopher Pedneault, Stefan St George, and Bassam A. Masri

In this review article, the authors present the many challenges that orthopedic surgeons in developing countries face when implementing arthroplasty programs. The issues of cost, sterility, and patient demographics are specifically addressed. *Despite the many challenges, developing countries are beginning to offer hip and knee reconstructive surgery to respond to the increasing demand for such elective operations as the prevalence of osteoarthritis continues to increase.* The authors shed light on these nascent arthroplasty programs.

### **The Changing Face of Infection, Diagnosis, and Management in the United Kingdom**

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Syed S. Ahmed, Khaled M. Yaghmour, and Fares S. Haddad

Prosthetic joint infection is still a rare but devastating complication following total hip and knee arthroplasty. The incidence of prosthetic joint infection ranges from 2% to 4% in primary procedures as opposed to nearly 20% in revisions. The challenges that arise here include mainly diagnostic uncertainty, management in immunocompromised patients, recurrent infection, infection around a well-fixed implant, and substantial bone loss, and require careful preoperative assessment and well-defined management plans. This article summarizes recent developments in the diagnosis and management of this increasingly prevalent issue specifically focusing on outcomes following debridement, antibiotics, and implants retention and one-stage revision procedures.

### **Unicompartmental Knee Arthroplasty: US and Global Perspectives**

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David A. Crawford, Keith R. Berend, and Emmanuel Thienpont

Unicompartmental knee arthroplasty (UKA) is a treatment option for anteromedial osteoarthritis. Compared with total knee arthroplasty (TKA), UKA offers improved knee range of motion, functional recovery and decreased medical complications. Revision rates continue to be higher with UKA compared with TKA. With current UKA implants, there is no significant difference in mobile bearing or fixed bearing, or between cemented and cementless implants. Enabling technology, such as robotic-assisted surgery, has demonstrated improvements in component positioning, but no long-term difference in survival compared with traditional manual instruments.

### **International Collaboration in Total Joint Arthroplasty: A Framework for Establishing Meaningful International Alliances**

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Elizabeth B. Gausden, Ajay Premkumar, and Mathias P. Bostrom

Despite the increase in utilization of total joint arthroplasty (TJA) throughout high-income countries, there is a lack of access to basic surgical care, including TJA, in low- and middle-income countries (LMICs). Multiple strategies, including short-term surgical trips, establishment of local TJA centers, and education-based international academic collaborations, have been used to

bridge the gap in access to quality TJA. The authors review the obstacles to providing TJA in LMICs, the outcomes of the 3 strategies in use to bridge gaps, and a framework for the establishment and maintenance of meaningful international collaborations.

### **Global Perspectives on Arthroplasty of Hip and Knee Joints**

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Mohammad S. Abdelaal, Camilo Restrepo, and Peter F. Sharkey

There is a broad variation of implantation rates, indications, and types of prostheses used for hip and knee joint replacement procedures among different countries. The establishment of national joint registers has improved knowledge and quality of data related to joint implantation. Comparing reports of different national registries is crucial to determine potential variations in practices among surgeons and arthroplasty centers and to identify topics for future analysis. In this report, data from these registries in addition to manufacturer reports were used to evaluate procedure volumes and implants utilization trends of primary and revision total hip and knee replacement around the world.

### **Trauma**

John C. Weinlein and Michael J. Beebe

#### **Impact of North American Institutions on Orthopedic Research in Low- and Middle-Income Countries**

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Ericka von Kaeppler, Claire Donnelley, Heather J. Roberts, Nathan N. O'Hara, Nae Won, David W. Shearer, and Saam Morshed

There exists an unmet need for locally relevant and sustainable orthopedic research in low- and middle-income countries. Partnerships between high-income countries and low- and middle-income countries can bridge gaps in resources, knowledge, infrastructure, and skill. This article presents a select list of models for high-income countries/low- and middle-income countries research partnerships including academic partnerships, international research consortia, professional society-associated working groups, and nongovernmental organization partnerships. Models that produce research with lasting legacy are those that promote mutually beneficial partnerships over individual gains.

#### **Intertrochanteric Femur Fracture Treatment in Asia: What We Know and What the World Can Learn**

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Shi-Min Chang, Zhi-Yong Hou, Sun-Jun Hu, and Shou-Chao Du

Hip fractures are of great interest worldwide as the geriatric population continues to increase rapidly. Currently, surgeons prefer to use cephalomedullary nail for internal fixation of pertrochanteric/intertrochanteric fractures. This article summarizes 10 concepts in hip fracture treatment over the past 20 years, including fracture line mapping, proximal lateral wall and anterior cortex, posteromedial lesser trochanter-calcus fragment, anteromedial cortex support reduction, changes of fracture reduction after sliding and secondary stability, nail entry point and wedge-open deformity, tip-apex distance and calcus-referenced tip-apex distance, femoral anterior bowing and nail modification, long nails for wide medullary canal and large posterior coronal fragment, and postoperative stability score.

### **Pediatrics**

Jeffrey R. Sawyer and David D. Spence

#### **The Burden of Pediatric Musculoskeletal Diseases Worldwide**

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Richard M. Schwend

Global burden of disease (GBD) refers to the economic and human costs resulting from poor health. The disability-adjusted life year is a measure of life lost

from premature death and life not lived at 100% health. Surgery has long been neglected in the distribution of resources for global health. Because of years of life lived with a disability and the large proportion of children in a population, pediatric musculoskeletal conditions early in life can contribute to the GBD. Fortunately, the World Health Organization has recently promoted essential surgical services through its Emergency and Essential Surgical Care Project and Global Initiative.

**Development of a Global Pediatric Orthopedic Outreach Program in Ecuador Through Project Perfect World: Past, Present, and Future Directions**  
Eric Fornari, Richard M. Schwend, Jacob Schulz, Christopher Bray, and Matthew R. Schmitz

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Global health delivery is a complex initiative requiring dedicated personnel to achieve a successful program. To be most beneficial, global health delivery should focus on cultural competence, bidirectional education, and capacity building through direct and purposeful means. The authors present the expansion of their global health delivery program in Ecuador focusing on the evolution of the program from a medical mission trip to a multilayered program that helps foster engagement, education, and learning while helping children who might not otherwise have access to care, along with future directions and potential methods to decrease the need for such initiatives in Ecuador.

**Hand and Wrist**

Benjamin M. Mauck and James H. Calandruccio

**Ulnar Abutment Syndrome in the Athlete**  
Thomas R. Acott and Jeffrey A. Greenberg

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Ulnar abutment (ulnocarpal impaction) syndrome may be a source of ulnar-sided wrist pain in the athlete. This condition results from excessive load transfer across the triangular fibrocartilage complex and ulnocarpal joints with characteristic degenerative changes. It frequently occurs in patients with either static or dynamic ulnar positive variance. Treatment is tailored to the athlete and their sporting demands. Surgical treatment focuses on addressing ulnar variance to unload the ulnocarpal joint, with multiple surgical options, including the metaphyseal closing wedge osteotomy achieving this goal. This review focuses on the presentation, biomechanics, and treatment options for ulnar abutment syndrome in the athlete.

**Operative Distal Radial Fractures: A Comparison of Time to Surgery After Evaluation by Surgical and Nonsurgical Providers in a Walk-in Clinic**  
Matthew N. Fournier, Joseph T. Cline, Adam Seal, Richard A. Smith, Thomas W. Throckmorton, and Benjamin M. Mauck

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To determine if orthopedic surgeons are more efficient than nonsurgical providers at care of operative injuries in walk-in clinics, patients in a walk-in clinic for evaluation of acute injury who subsequently had surgical treatment of isolated distal radial fracture were compared based on whether the initial visit was with a surgical or nonsurgical provider. Initial evaluation in a walk-in orthopedic clinic setting versus a conventional hand surgeon's clinic was associated with longer delay between initial evaluation and surgical treatment, but this difference may not be significant. Evaluation by a nonsurgical provider was not associated with increased duration to definitive treatment.

## Shoulder and Elbow

Tyler J. Brolin

### Global Perspectives on Management of Shoulder Instability: Decision Making and Treatment

Lisa G.M. Friedman, Laurent Lafosse, and Grant E. Garrigues

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The glenohumeral joint is prone to instability. Patients with instability should have a physical examination. Imaging studies can provide additional information. Classification schemes that into account soft tissue pathology, neuromuscular control, bone loss, and activity level. An arthroscopic Bankart repair is the mainstay for unidirectional instability. Bone block procedures are indicated for patients with bone loss or a failed attempt at stabilization surgery. The arthroscopic Latarjet is a promising option for these patients. For patients with multidirectional instability, prolonged rehabilitation is indicated, followed by capsular plication or inferior capsular shift if instability is unresponsive to physical therapy.

### Obesity is Associated with an Increased Prevalence of Glenohumeral Osteoarthritis and Arthroplasty: A Cohort Study

Kevin C. Wall, Cary S. Politzer, Jorge Chahla, and Grant E. Garrigues

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The relationship between obesity and glenohumeral osteoarthritis is relatively understudied. The purpose of this study was to better define this relationship by age- and gender-matching 596,874 patients across six body mass index (BMI) cohorts and determining the prevalence of glenohumeral osteoarthritis and the standardized rate of glenohumeral arthroplasty in each cohort. Individuals with a BMI over 24 were found to be at increased odds for developing glenohumeral osteoarthritis, compared to the normal BMI cohort, and individuals with a BMI over 30 were additionally found to be at increased odds for undergoing glenohumeral arthroplasty.

### Elbow Hemiarthroplasty for the Treatment of Distal Humerus Fractures

Nicholas Chang and Graham J.W. King

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Distal humerus hemiarthroplasty is a good surgical option for nonreconstructable intraarticular distal humerus fractures in selected lower-demand patients. The lifetime activity restrictions have not been determined, but are likely less than a total elbow arthroplasty. From a technical standpoint, distal humeral prostheses should be implanted at the correct depth and rotation. The collateral ligaments, condyles, and epicondyles should be preserved and/or repaired to maintain joint stability. Short- to midterm retrospective studies have shown promising results.

## Food and Ankle

Clayton C. Bettin and Benjamin J. Grear

### Orthopedic Surgical Foot Management in Hansen Disease

Jose Carlos Cohen and Silvana Teixeira de Miranda

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Hansen disease remains a common problem worldwide with 750,000 new cases diagnosed each year. Nerve injury is a central feature of the pathogenesis because of the unique tendency of *Mycobacterium leprae* to invade Schwann cells and the peripheral nervous system, that can be permanent and develop into disabilities. The orthopedic surgeon has an important role in the management of neuropathy, performing surgical release of the tibial and common peroneal nerves in potentially constricting areas, thus providing a better environment for nerve function. In cases of permanent loss of nerve function with drop foot, specific tendon transfers can be used.

**Brazilian Total Ankle Replacement Experience****293**

Caio Nery, André Vitor Kerber C. Lemos, Cesar Eduardo Castro Ferreira Martins, and Daniel Baumfeld

Brazil experiences a late participation in total ankle arthroplasty, which could have positive and negative aspects. The positive view argues about the modern implants that Brazil has received in the past years, skipping the early total ankle replacement generation who present more complications and low survival rate in the literature. The negative aspects are related to gap of experience with Brazilian surgeons unable to participate in the development of the technique and implant designs during these years. This article discusses the aspects of the Brazilian experience with total ankle replacement since the earliest procedures performed.