case presentation

F.R. was a 59-year-old male with a history of bilateral knee arthritis for several years and a history of a left knee infection following an arthroscopic procedure in the mid-1980s. In April 2010, F.R. sustained a traumatic dislocation of his left knee while skiing in Colorado. Within several days of this injury he had reconstruction of his medial collateral ligament and lateral collateral using hardware and autograft reconstruction. Several weeks after this surgery, F.R.’s knee became red and swollen, and he was diagnosed with septic arthritis. He was then taken back to surgery for exploration and washout with the hardware left in place. He was treated with six weeks of IV followed by six weeks of oral antibiotics for a sensitive staphylococcus aureus.

assessment of her clinical presentation. Radiographs showed the trochanteric fracture had healed but cultures confirmed the infection was still present. In August 2010, Dr. Hugate removed the existing Prostalac, extensively debrided the hip joint, and implanted a new high-dose antibiotic impregnated monopolar Prostalac (Figure 6), along with placement of vancomycin and tobramycin impregnated calcium sulfate beads. Post-operatively, W.M. resumed her IV Daptomycin regimen. Cultures taken from the hip during this procedure were negative.

Post-operatively, W.M. did well; she was toe-touch weight bearing for two weeks then gradually increased her weight bearing. In October 2010, after six weeks of IV Daptomycin, Dr. Alyaseen discontinued antibiotics and a joint aspiration returned negative results. W.M. returned to the OR for re-implantation of her hip arthroplasty (Figure 7) on November 17, 2010. Cultures from this procedure came back negative. W.M. was discharged home and started home physical therapy.

On subsequent follow-up visits she continued to steadily progress functionally and had no signs of infection. At her most recent follow up in May 2013, W.M. continues to do well clinically with no signs of recurrent infection and no pain.

CONCLUSION

Fortunately, infections are an uncommon complication of joint replacement. In cases such as W.M.’s, it is important to debride the surgical wound adequately and remove any hardware that may have bacterial adhesion and/or associated biofilms as these are often the sources of persistent infections. The key to successful management of these difficult infections is a team approach emphasizing the combination of adequate debridement (in a staged fashion, when necessary) and appropriate IV antibiotic treatment.
F.R. was referred to the Denver Clinic for Extremities at Risk for an additional evaluation. His knee had minimal range of motion, was swollen and mildly tender, and was draining sinus medially. His sedimentation rate and C-reactive protein levels were elevated. X-rays and subsequent MRI at that time showed evidence of posterior subluxation of the tibia on the femur with a dramatic amount of swelling and synovitis. There was also a possibility of osteomyelitis on the surface of both involved bones (Figures 1 and 2a, 2b). Multiple options were discussed with the patient at that time and it was decided that an open debridement with hardware removal would result in the best outcome. With this evidence then we proceeded with a knee replacement using an extensile approach, realizing that we would be performing a quadriceps V-Y lengthening. The patella had significant fibrosis and was not resurfaced. The new implant was placed with methylene blue and antibiotic cement and a V-Y lengthening of the quadriceps tendon was completed (Figure 3). Post-operatively the patient began a standard rehab program protected from extreme flexion with a hinged brace. Active range of motion was started 8 weeks post-operatively and the patient progressed with his motion and strength.

At last follow-up, two years post knee replacement surgery; the patient had been very active including hiking and bicycling. His range of motion was from -3 degrees to 110 degrees. He had no effusion, no tenderness and alignment and soft tissues looked good. Currently, the patient is under continued surveillance for return of his infection. He is off all antibiotics at this point in time.

CONCLUSION
Septic arthritis can be dangerous and can result in joint destruction. Septic arthritis coupled with a historically unstable joint presents an even higher risk. Determining a treatment plan to minimize physical impairment often requires a multi-disciplinary approach. Physically active patients with this diagnosis value their ability to participate in sports and recreational activities and therefore expect their doctors to take this into account when presenting treatment options. For many, the inability to perform their regular physical activities indefinitely would result in a dramatic decline in quality of life.

The diverse expertise offered by our team enables us to treat complex problems. Our abilities to quickly communicate, operate collaboratively, and address unique issues as they arise facilitate superior outcomes and high patient satisfaction.

Case Report #2
MRSA INFECTION OF A HIP ARTHROPLASTY

PHYSICIANS
Ronald R. Hugate, MD, Orthopedic Surgery, Colorado Limb Consultants
Samer Alyaseen, MD, Infectious Disease, Rocky Mountain Infectious Disease Specialists

INTRODUCTION
The risk of developing a deep infection following hip arthroplasty is approximately 0.5%. Patients who are diabetic, smoke, are obese or malnourished, have active infections elsewhere, and those who are on immunosuppressive medications are at an increased risk. We present the treatment of a hip arthroplasty infected with Methicillin-resistant Staphylococcus aureus (MRSA) in a 72-year-old active female patient. Deep implant infections are difficult to treat due to the formation of a biofilm along the implant surface by the bacterial colonies. Biofilms protect the implants against traditional treatments for infection. Due to the complexity of this issue, a team approach was utilized to treat this infection and restore function.

CASE PRESENTATION
W.M. is an active 72-year-old female with a history of osteoporosis and chronic left hip pain. In November 2009, she underwent a hemiarthroplasty following an osteoporotic left hip fracture (Figure 4).

The following month she had significant pain and redness around the incision site and was found to have a deep MRSA infection. The wound was opened and extensively debrided, followed by a femoral head exchange. Despite this, her infection persisted and she was taken again to the OR in April 2010 for removal of her hip implant and placement of an antibiotic spacer. During this surgery she fractured her greater trochanter which required cabling to fix (Figure 5). Post-operatively she received IV antibiotics for six weeks. Despite this aggressive series of treatments, her infection persisted.

W.M. was then referred to Ron Hugate, MD at The Denver Clinic for Extremities at Risk (DCER) on July 2, 2010 for an additional evaluation. His knee had minimal range of motion, was swollen and mildly tender, and was draining sinus medially. His sedimentation rate and C-reactive protein levels were elevated. X-rays and subsequent MRI at that time showed evidence of posterior subluxation of the tibia on the femur with a dramatic amount of swelling and synovitis. There was also a possibility of osteomyelitis on the surface of both involved bones (Figures 1 and 2a, 2b). Multiple options were discussed with the patient at that time and it was decided that an open debridement with hardware removal would result in the best outcome. With this evidence then we proceeded with a knee replacement using an extensile approach, realizing that we would be performing a quadriceps V-Y lengthening. The patella had significant fibrosis and was not resurfaced. The new implant was placed with methylene blue and antibiotic cement and a V-Y lengthening of the quadriceps tendon was completed (Figure 3).

Post-operatively the patient began a standard rehab program protected from extreme flexion with a hinged brace. Active only range of motion was started 8 weeks post-operatively and the patient progressed with his motion and strength. At last follow-up, two years post knee replacement surgery; the patient had been very active including hiking and bicycling. His range of motion was from -3 degrees to 110 degrees. He had no effusion, no tenderness and alignment and soft tissues looked good. Currently, the patient is under continued surveillance for return of his infection. He is off all antibiotics at this point in time.

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osteosarcoma (CORR, 2005:438; CORR, 2008:446) as well as new options in prosthetic design. Including a treatment protocol that has resulted in the best reported long-term survival rate for adults and children diagnosed with complex extremity issues. The program is actively involved in research involving treatment approaches for extremity disease and injury, surgeons, vascular surgeons, plastic surgeons, oncologists, infectious disease specialists and pediatric subspecialists collaboratively manage system extremity trauma and bone and soft tissue tumors of the extremities in adults and children. The multidisciplinary team of orthopedic established in 1986, The Denver Clinic for Extremities at Risk (DCER) at P/SL is a comprehensive orthopedic program focusing on single joint as well as the management of patients with recurrent infection and no pain.

CONCLUSION
Fortunately, infections are an uncommon complication of joint replacement. In cases such as W.M.'s, it is important to debride the surgical wound adequately and remove any hardware that may have bacterial adhesion and/or associated biofilms as these are often the sources of persistent infections. The key to successful management of these difficult infections is a team approach emphasizing the combination of adequate debridement (in a staged fashion, when necessary) and appropriate IV antibiotic treatment.

Case Report #1
TREATMENT OF SEPTIC ARTHRITIS OF THE KNEE
PHYSICIANS
Ross M. Wilkins, MD, MS, Orthopedic Surgeon, Colorado Limb Consultants
Norman K. Fujita, MD, Infectious Disease, Western Infectious Disease Consultants, PC
INTRODUCTION
Septic arthritis is a painful condition that can result in destruction of the affected joint if not treated properly. The usual plan of care includes antibiotics, drainage of fluid and physical therapy to maintain joint motion. In the following patient case we will discuss treatment of septic arthritis of the left knee in a physically active patient with a history of problems and injuries in the affected knee. Treatment for this complex joint infection required a team approach between an orthopedic surgeon and an infectious disease specialist. The collaboration of two experts enabled the patient to recover from the infection without physical disability. To date, the patient continues to participate in his physical activities without limitation.

CASE PRESENTATION
F.R. was a 59-year-old male with a history of bilateral knee arthritis for several years and a history of a left knee infection following an arthroscopic procedure in the mid-1980s. In April 2010, F.R. sustained a traumatic dislocation of his left knee while skiing in Colorado. Within several days of this injury he had reconstruction of his medial collateral ligament and lateral collateral using hardware and autograft reconstruction. Several weeks after this surgery, F.R.'s knee became red and swollen, and he was diagnosed with septic arthritis. He was then taken back to surgery for exploration and washout with the hardware left in place. He was treated with six weeks of IV followed by six weeks of oral antibiotics for a sensitive staph...