San Francisco Success: AOAO Annual Meeting Proves Productive

ALSO IN THIS ISSUE:
Dr. Boyd Bowden Profile
Des Peres Hospital Residency Overview
Comprehensive Annual Meeting Coverage
Legg-Calve-Perthes Disease Scientific Paper
Our academy continues to grow, adding new members and opening new programs yearly thanks to excellent leadership starting from our first executive director, Dr. J. Paul Leonard, through Drs. William J. Monaghan, Donald Siehl, and Morton J. Morris, to current executive director, Dr. Lee Vander Lugt. With the ever-changing landscape of medicine and medical societies, reflection and self-evaluation are essential. Our past president, Dr. Jack Lennox, along with Dr. Vander Lugt, has spearheaded such an evaluation. Utilizing a committee of our board with added leadership from Dr. Steve Heithoff, this process has begun. During our recent annual meeting, the AOAO Board of Directors met with an outside firm to help guide our organization through our near future.

What are some of the issues we face as osteopathic orthopedic surgeons? They include adapting to new technology, compliance and competency, partnerships, joint ventures and secondary income, reimbursement, and patients and practice. We need to embrace technology, not fear it. Electric medical records are finally here, as are information systems and the thing Al Gore “invented”—the Internet. These tools will allow us to treat our patients more thoroughly and make our practices more efficient and cost effective.

Patient safety continues to be our mantra. As surgeons, we have developed these lists in our head, but we are human and help is appreciated, but not always embraced. There is an old saying about the devil you know being better than the devil you don’t. Checklists are charms against the devils we know.

Is my doctor competent? This should be a rhetorical question, but alas it is not. A friend gave me this line, and it fits well: “The competency and compliance conundrum.” We will be participating in mandated lifelong learning that will be linked to our certification. The hardest conviction is to get into the minds of the beginner that the education in which he or she is engaged is not a college course, not a medical course, but a life course. It is our mission “to assure society that all osteopathic orthopedic surgeons are competent.”

Other issues of importance include reimbursement and high deductibles. We also have to work to lower health care costs by helping patients become more cost-conscious and help make insurance premiums more affordable for the uninsured. This is our reality as providers and as employers, but actually high deductibles may actually cause more health issues such as a patient not filling a prescription, not getting needed specialist care, skipping a recommended test or follow-up visit, and having a medical problem but not visiting a doctor or clinic.

In my opinion, there are some other areas of concern as well:

• For practicing orthopedic surgeons, the future of the independent practice of medicine seems to be short-lived.

• Hospitals seem to prefer salaried doctors.

• Insurance companies reimburse physicians below levels that will sustain independence.

• Accountable care organizations will place the local hospital in charge of physician reimbursement.

• Obamacare has ended physician ownership in hospitals.

The topics I mentioned above seem to be a trend, so how should we proactively address them? We may be able to enlist our 1,600-plus members to help mentor each other to find other possible avenues for practice revenue that will benefit patients, physicians, and hospitals. I have enlisted a past AOAO president, Dr. Mark Gittins, to help organize this project.

We cannot lose sight that we are orthopedic surgeons. We can straighten a spine, we can increase function by doing total joint replacements, and we can replant severed limbs. How cool is that? Even with all our outside pressures, we have rewarding jobs.

H. Brent Bamberger, D.O., FAOAO

Incoming President’s Message
AOAO and ACOS Hire Team of Government Affairs Consultants
The AOAO and the American College of Osteopathic Surgeons are utilizing the services of the Powers Pyles Sutter and Verville PC (PPSV) law firm in Washington, D.C., to represent them on government affairs issues that affect physicians.

ACO Formation: Government Workshop Addresses Legal Obstacles
Of the many payment reform initiatives included in the Affordable Care Act (ACA), the Medicare Shared Savings Program (aka accountable care organizations or ACOs) seems to be garnering the most attention. It is also the only Medicare payment reform initiative that must be implemented as an actual program rather than just a pilot or demonstration project.

Overview of the Des Peres Hospital Orthopedic Surgery Residency Program
Although home base is a small community teaching hospital in St. Louis, Missouri, the orthopedic residency program at Des Peres Hospital in St. Louis, Missouri, provides a comprehensive education from a community rich in medical education.

Dr. Boyd Bowden Humbly Downplays Osteopathic Icon Status
In July 2008, the American Osteopathic Association (AOA) Bureau of Osteopathic History and Identity honored a number of illustrious individuals who have made pioneering differences in osteopathic medicine, including one down-to-earth D.O. who has spent his career working to improve the lives of his patients and osteopathic peers—Boyd W. Bowden II, D.O., FAOAO.

Education and Accomplishment on Display in San Francisco
Although this was the second unity meeting held by the American Osteopathic Association to bring together the various osteopathic specialties since the concept was originated in 2005, it marked the first time the AOAO Annual Meeting was held in complete conjunction with the AOA’s Medical Conference and Exposition.

• Award Winners - 19
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Legg-Calve-Perthes Disease: Where Are We 100 Year Later?
Legg-Calve-Perthes disease is the most common hip disease that afflicts school-age children. The disorder was described by three independent authors in 1910. Arthur Legg, Jacques Calve, and Georg Perthes might be surprised to see both how much and how little have changed in 100 years. Treatments of the past, which were mainly observational in nature, have given way to more aggressive surgical protocols that are considered to improve an otherwise poor natural history for many children.
Executive Director’s Message

Lee Vander Lugt, D.O., FAAOAO

With another eventful year about to come to a close, I wanted to share my thoughts on a number of topics related to the AOAO and the osteopathic orthopedic surgical profession.

We recently held our annual meeting on October 24-26 in conjunction with the American Osteopathic Association’s 115th Medical Conference and Exposition (OMED 2010 Unified), which was held in San Francisco, California. As always, the educational component of our meeting was quite successful as close to 575 members participated. This year, we also had the opportunity to coordinate several combined sessions with the sports medicine and neurology groups, which were well attended and well received.

Because we had never assembled in conjunction with the AOA symposium before, there were some logistical challenges that had to be dealt with. As a result, the AOAO Board of Directors will assess member feedback and review the overall meeting experience. One possible option could be to meet in the same city on the same dates, but choose our own hotel near the AOA conference site so we can hold our meetings separately but allow flexibility for our members to attend non AOAO-related sessions.

While in San Francisco, we held a productive board meeting that included further discussions about our strategic planning process, which I touched on in my summer 2010 Orthopod message. During this meeting, we met for six hours with the strategic planning consultant we hired to help us achieve even-higher levels of efficiency when it comes to dealing with issues such as CME changes mandated by the AOA, academy bylaws, and our finances. We are currently in the process of preparing a draft document that will be fine-tuned before being finalized and implemented at our 51st Annual Postgraduate Seminar, which will take place May 13-15, 2011, in Scottsdale, Arizona.

As many of you are already aware, our revamped website is now up and running, although it is still a work in progress. Over the next several months, we plan to incorporate a program directors’ section as well as implement a robust resident area. We’re also working toward making it more user-friendly and applicable to the students and residents. Another area we’re investigating is the feasibility of adding social media aspects such as Twitter and Facebook.

We’re also addressing the issue of Osteopathic Continuous Certification (OCC), which the AOA will be requiring of all practicing osteopathic physicians in the next two years. According to the AOA website, “OCC will serve as a way in which board-certified D.O.s can maintain currency and demonstrate competency in their specialty area. OCC plans are being developed by each specialty certifying board; all boards will have the OCC process in place and implemented by January 1, 2013.”

Consequently, we’re working with our certification board to develop the appropriate assessment mechanisms. Our goal is create a continuous certification process that meets all the necessary criteria but is not onerous. In the near future, our members may have to take a recertification exam every 9 years instead of the present 10 years, but they’ll also have to participate in the OCC process every three years to indicate they are improving their practice through a Practice Performance Assessment.

On the residency front, I’m proud to report that our programs continue to thrive—and grow. Presently, we have 431 osteopathic orthopedic surgery residents in training in 33 different programs. We’ve also approved two new programs to start next year, with another pending approval, so we could be up to 36 residency programs in the very near future.

As you can see, it’s been a busy—and productive—year for the AOAO. I want to thank all our members for their support and feedback and wish the extended AOAO family a happy and healthy holiday season.

Outgoing President’s Message

Jack D. Lennox, D.O., FAAOAO

This past year has been both productive and challenging in terms of leading the charge for change in our great academy.

The year started abuzz with health care reform. We had our say through multiple phone conferences and dollars spent, not withstanding the fact that our side did not prevail. Obviously the final chapter is a long way from being written, but perhaps the best thing gained from the fight was sharing a financial stake with our M.D. brethren in the AOAO.

By now, most of you know my year has centered on the proposal, development, and early implementation of a historic and necessary strategic plan for the AOAO. With Dr. Lee Vander Lugt’s encouragement and great assistance, as well as opportune timing on our side, the proposal to our board was made and accepted.

With input from many quarters, Tripp Umbach, a well-respected consulting firm from Pittsburgh, was selected. Thus far our selection has been confirmed many times over. I really can’t say enough good things about the firm’s expertise and talents. This started with a face-to-face in Pittsburgh for a six-hour meeting where we arranged the outline as well as the particulars of the plan. With a great deal of work accomplished, Drs. Vander Lugt, Brent Bamberger, Steve Heithoff, and I met with Paul Umbach and Angie Lockwood in Detroit in September to finalize and, hopefully, streamline the hard but fruitful work we have done.

Our relationship with the Ruggles Corporation continues to develop; however, we really need a different game plan in five years, one way or the other. Another major development this year was the update, both functionally as well as graphically, to another pending approval, so we could be up to 36 residency programs in the very near future.

Lastly, I’d love to take credit for even a portion of the work Dr. Vander Lugt has been a part of this year, but alas, I cannot. We have become good comrades throughout this year, and he serves our academy with grace, humor, intelligence, and hard work better than any individual I know.
Boyd W. Bowden II, D.O., FAOAO, who served as AOAO president in 1990-91, received the American Osteopathic Association’s (AOA) highest honor on October 25 when he was presented with the AOA Distinguished Service Certificate at the 115th Osteopathic Medical Conference and Exposition (OMED 2010 Unified) held in San Francisco, California. Dr. Bowden, who also serves as an AOA trustee, was honored for his “accomplishments in furthering the osteopathic medical profession through research and philanthropy.”

David C. Koronkiewicz, D.O., of Indiana was presented with the J.B. Kinsinger Plaque for outstanding service to the osteopathic profession and his community at a luncheon held May 1, 2010, during the Indiana Osteopathic Association (IOA) Annual Convention. The accolade is the highest honor accorded by the IOA.

Lee Vander Lugt, D.O., FAOAO, of Oklahoma, who serves as AOAO executive director, visited the American Association of Hip and Knee Surgeons (AAHKS) office in Rosemont, Illinois, to meet with AAHKS Executive Director Robert Hall, M.Ed. During the meeting, they discussed areas of mutual interest, such as the need to repair the broken sustainable growth rate formula and ways the two organizations might work together on issues of mutual interest.

Morton Morris, D.O., J.D., FAOAO, who passed away in 2008 and served as the AOAO’s executive director for 17 years, was posthumously honored in August with the Florida Board of Osteopathic Medicine’s Board Chairman’s Award. The accolade was bestowed “In recognition and commendation of his many years of outstanding contributions to the osteopathic medicine profession.”

David C. Koronkiewicz, D.O., FAOAO

AOBOS Update

Attention Recertification Candidates: The AOBOS’ recertification examination will be offered via computer-based delivery at Prometric Centers nationwide on Saturday, April 9, 2011. The recertification examination application deadline is January 17, 2011. For complete details, candidates should download the Handbook for Candidates for Board Recertification from the AOBOS website (www.aobos.org).

Recertification Application Deadline
January 17, 2011

Recertification Examination
April 9, 2011 – Prometric Centers

Part I
Written Examination Application Deadline
January 17, 2011

Written Examination
May 18, 2011 – Prometric Centers

Part II
Oral Examination Application Deadline
August 15, 2011

Oral Examination in Chicago, Illinois
October 19, 2011

Part III
Clinical Examination 2011 – Summer Cycle
Application Deadline
February 15, 2011

Clinical Examination – 2011 Summer Cycle
May – August 2011

Clinical Examination – 2012 Winter Cycle
Application Deadline
August 15, 2011

Clinical Examination – 2012 Winter Cycle
November 2011 – February 2012

Klippel-Feil Syndrome

By Arnold Melnick, D.O., M.Sc., FACOP
Executive Editor, The Orthopod

Maurice Klippel

Maurice Klippel, a French neurologist and psychiatrist, was born in 1858 in Alsace. He studied medicine in Paris and received his doctorate in 1889. In 1902, he became head of a department of general medicine at the Hopital Tenon. Known as a prolific writer, especially in his chosen fields of neurology and psychiatry, he also covered a variety of other medical topics including histology, pathology, and congenital diseases. In 1942, Klippel died at the age of 84, leaving a legacy of many published articles, several eponyms, and at least seven books.

Andre Feil

Interestingly, Andre Feil’s name in the literature is almost always in direct connection with Maurice Klippel and rarely alone. In fact, there is a dearth of biographical material about Feil, only that he was a French neurologist born in 1884. Some articles on Klippel-Feil Syndrome say Feil was Klippel’s resident (their ages would reinforce that), and that they together reported the first cases. However, many writings say they independently reported this syndrome. No specific references to their original reports could be found.

Perhaps this is a case in which a person serendipitously becomes part of an eponym—or was at the right place at the right time.
The AOAO and the American College of Osteopathic Surgeons are utilizing the services of the Powers Pyles Sutter and Verville PC (PPSV) law firm in Washington, D.C., to represent them on government affairs issues that affect physicians. Following is information regarding the three PPSV consultants:

**Robert M. Portman, J.D.**

Portman is a principal with PPSV. He concentrates his practice in health and association law and policy matters, focusing on governance issues, certification law, administrative law, antitrust law, litigation, transactions, election and lobbying law, and legislation and regulation in the health care and association fields. He represents a wide range of nonprofit organizations, including national professional societies, trade associations, and voluntary health organizations and certification bodies. He also represents these clients before Congress, federal agencies, and the courts on legislative, regulatory, and other advocacy issues involving health care policy and nonprofit law. He has lectured and written numerous articles on health care, association, and certification legal issues.

**Adam Renfro Chrisney, B.S.**

Chrisney is PPSV’s senior legislative director, serving as a lobbyist and policy analyst for the firm’s legislative practice. He is a seasoned congressional and government affairs professional with eight years of staff experience in the U.S. House and Senate dealing with a diverse range of issues. He provides expertise in health care policy and possesses a keen understanding of congressional decision-making, including the legislative, rules, and appropriations processes. He offers planning, advocacy, and governmental affairs services primarily to health care clients and specializes in developing and implementing strategies for legislative and appropriations projects. He was legislative director to former Iowa Representative Greg Ganske from 1999 to 2003, serving Representative Ganske on the House Energy and Commerce Committee and also worked as the legislative assistant to former New York Senator Alfonse M. D’Amato from 1995 through 1998, staffing the senator on the Senate Finance Committee.

**Rebecca L. Burke, J.D.**

Burke has more than 25 years of health care law experience. Her practice encompasses a broad range of regulatory and reimbursement services. She regularly represents clients before the Centers for Medicare and Medicaid Services and other federal agencies on a variety of Medicare and Medicaid payment, fraud and abuse, Stark law, coverage, coding, and other issues that affect physicians, hospitals, transplant centers, diagnostic testing facilities, and other health care providers. She also represents several health care organizations, including a number of physician specialty organizations, on regulatory issues as well as general association law matters. She is a member of the American Health Lawyers Association and a frequent contributor to publications in the health care arena.
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The many payment reform initiatives included in the Affordable Care Act (ACA), the Medicare Shared Savings Program (aka accountable care organizations or ACOs) seems to be garnering the most attention. It is also the only Medicare payment reform initiative that must be implemented as an actual program rather than just a pilot or demonstration project.

Under Section 3022 of the ACA, the Centers for Medicare and Medicaid Services (CMS) must, by January 1, 2012, establish a “shared savings program” to promote accountability and coordination of care under Medicare Parts A and B. An ACO is an organization of health care providers that agrees to be accountable for the quality, cost, and overall care of Medicare beneficiaries who are enrolled in the traditional fee-for-service program who are assigned to it.

Accountable care organizations that meet quality performance standards and other criteria to be specified through regulations are eligible to receive payments for shared savings. The law gives the CMS broad authority to determine what ACOs should look like and how they should be paid. Although the primary ACO payment model is an entity that bills Medicare on a fee-for-service basis, a lesser-known provision in the law also gives the CMS authority to use partial capitation or “any payment model that the Secretary determines will improve the quality and efficiency of items and services furnished…”

The act leaves it up to the CMS to set the percentage of savings that can be shared with the ACO and exactly how “savings” will be measured. The CMS intends to issue proposed regulations on this and other aspects of the shared savings program sometime later this fall. In the meantime, health care providers as well as insurers and employers are all attempting to position themselves to take advantage of this new program or, at least, not be harmed by it. This has resulted in a proliferation of conferences, workshops, webinars, and the like all devoted to ACOs.

The most recent of these, sponsored by three government agencies, took place October 5, 2010, at Medicare’s headquarters in Baltimore. The Workshop Regarding Accountable Care Organizations, and Implications Regarding Antitrust, Physician Self-Referral, Anti-Kickback, and Civil Monetary Penalty (CMP) Laws featured the Federal Trade Commission (FTC), the Health and Human Services (HHS) Office of Inspector General (OIG), and the CMS. Because ACOs will likely involve arrangements among otherwise competing providers, there is a potential impact on competition that can implicate the federal antitrust laws. ACO arrangements are also likely to implicate the Medicare fraud and abuse laws to the extent that they involve arrangements between referring physicians, hospitals, and other providers. In particular, the CMP law prohibits payments to physicians for reducing care,
which could run counter to the savings goals of ACOs. The ACA gives the secretary of HHS authority to waive the fraud and abuse laws, to the extent necessary to advance the purposes of the shared savings program. The FTC has authority to decide how it will interpret the antitrust laws, provide guidance, and create safe harbors.

The workshop attempted to address the issue of whether and to what extent the government should relax or otherwise modify the federal antitrust laws and the Medicare anti-kickback, Stark, and CMP laws to promote the formation of ACOs. Workshop participants included representatives of physician and hospital organizations, employers as purchasers of insurance, the health insurance industry, and consumer representatives.

CMS Administrator Donald Berwick, M.D., opened the workshop by emphasizing that the CMS, the OIG, and the FTC were in dialog with one another and understood the need for a unified approach. He commented that, in his view, ACOs were primarily a vehicle for improving the quality of care through improved integration rather than a financing mechanism. During the panel discussions, the position of the workshop participants was driven, at least in part, by whether they were providers or purchasers of health care. Those representing providers (e.g., physician and hospital organizations) viewed broad fraud and abuse waivers and a flexible approach to antitrust as essential to the development of ACOs. They argued that the industry needed some certainty that ACO arrangements would comply with the relevant federal laws if parties were to engage in the substantial startup costs necessary to form an ACO. On the other side, employers and insurers were concerned that too much leniency could result in monopolization of markets and increased prices.

Those representing physicians urged that the shared savings program must allow for participation by small physician practices.

They noted that the physician community is concerned that small practices as well as single-specialty groups will be effectively excluded from participation in ACOs, as the field is occupied by large multispecialty practices, academic medical centers, and large hospital systems. Hospitals may be particularly vulnerable under shared savings programs since a major source of savings is likely to come from reductions in hospitalizations and emergency department visits. Some workshop participants opined that this may be a reason hospitals have been aggressively purchasing physician practices, especially primary care practices. Hospital representatives stressed the need for increased protection for gain-sharing arrangements under which physicians, and surgeons in particular, can be rewarded for reducing expenditures.

Another big and as yet unanswered question is whether ACOs should operate under “exclusivity” principles. Exclusivity, in this context, means that a physician in an ACO can only provide services through the ACO and cannot use the ACO infrastructure to provide services to other patients not assigned to the ACO. Most panelists thought some degree of exclusivity would be necessary; that physicians needed to be loyal to the organization and that a high-functioning ACO is not possible if loyalties are split. The FTC acknowledged that exclusivity can enhance competition but also creates market share or monopolization issues. Generally, panelists seemed to agree that exclusivity was important for the core group of primary care physicians but may not be as critical for specialty physicians who practice in different entities.

The takeaway message from the workshop is that the health care provider community feels strongly that unless there is significantly more flexibility and certainty under antitrust and fraud and abuse laws, providers will be unwilling to take the financial risk necessary to establish ACOs.
Although home base is a small community teaching hospital in St. Louis, Missouri, the orthopedic residency program at Des Peres Hospital in St. Louis, Missouri, provides a comprehensive education from a community rich in medical education. The metropolitan area of St. Louis provides opportunities at Level I trauma centers as well as at world-renowned children’s medical centers.

The program’s success has perpetuated throughout the years thanks to the gifted and dynamic leaders that have stewarded the program over the years. From its inception in 1965 with the vision of Dr. William Luebbert and later, Dr. Lee Vander Lugt, to its current program director, Dr. Richard Howard, the program has graduated skillful orthopedic surgeons. Many of the graduates have pursued fellowships and specialized in a host of orthopedic subspecialties. To date, 41 osteopathic orthopedic surgeons have graduated from the residency. Currently, the program is approved for 10 positions, all of which have been filled.

The orthopedic surgery program was initiated at Normandy Osteopathic Hospital—the only osteopathic hospital in St. Louis. Surviving financial hardship and multiple owners, the program now thrives at Des Peres Hospital—a Tenet-owned for-profit hospital. With an emphasis on the core competencies, residents receive a diverse education while gaining experience at a small community teaching hospital located in the suburbs and at a large academic medical center in urban St. Louis. This affords them the stepping stones to fellowship training should they so desire as well as the confidence to practice in any health care environment.

Strengths of the program come from the general and subspecialty expertise of the core faculty as well as the structured daily didactics. Core faculty members include:

- **Richard Howard, D.O., FAOAO**, who did his fellowship training in hand and microsurgery at the University of South Florida in Tampa and currently chairs the AOBOS.
- **Michael Chabot, D.O., FAOAO**, who completed a fellowship in spine surgery at William Beaumont Hospital in Royal Oak, Michigan.
- **Joseph Ritchie, M.D.**, who did his fellowship training in sports medicine at the Cleveland Clinic.
- **Matthew Collard, D.O.**, who completed a fellowship in trauma and hip surgery at Universitätsspital Bern in Bern, Switzerland.
- **Leo Whiteside, M.D.**, an orthopedic surgeon with expertise in joint replacement and revision.
- **Sherwyn Wayne, D.O.**, who did his residency training in physical medicine and rehabilitation at UCLA and completed a fellowship in reconstructive orthopedic surgery.

Orthopedic surgeons with certification in trauma and pediatrics provide the specialty training at St. Louis University and Cardinal Glennon Children’s Medical Center. The residents complete nine months of orthopedic trauma and six months of pediatric orthopedics. In addition, six months of primary and revision total joint arthroplasty is completed with Dr. Leo Whiteside. The didactic program consists of the following daily 6:30 a.m. components:

**Monday**
Fracture Conference – involves reviewing ER and clinic fracture cases from the previous week

**Tuesday and Wednesday**
Review chapters of orthopedic texts such as Miller Review of Orthopaedics. Prior to the Orthopaedics In-Training Exam (OITE), the residents focus on board preparation; after the OITE, the focus is on techniques.

**Thursday**
Case presentation and review

**Friday**
Practice questions for OITE and board certification

Once per month, Journal Club is held in the evening to allow most residents to attend. The chief resident selects a theme, such as trauma, and assigns different articles to each resident. The articles are reviewed and discussed for possible changes in practice patterns.

Residents also attend national conferences on basic fractures and pathology, while cadaver training is held several times each year. OMT, which is integrated into daily cases, also is featured through the OMT Club that is held monthly and attended at least quarterly by the residents to provide residents the opportunity to perform hands-on osteopathic practice.

The overall goal of the orthopedic residency program at Des Peres Hospital is to provide the residents with progressive and rigorous training in orthopedic surgery and prepare them for successful certification in orthopedic surgery.
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In July 2008, the American Osteopathic Association (AOA) Bureau of Osteopathic History and Identity honored a number of illustrious individuals who have made pioneering differences in osteopathic medicine, including one down-to-earth D.O. who has spent his career working to improve the lives of his patients and osteopathic peers—Boyd W. Bowden II, D.O., FAOAO.

Joining an inaugural group of physicians aptly named Great Pioneers in Osteopathic Medicine was an honor richly deserved by Dr. Bowden, but winning accolades and being showered with praise has never been a motivating factor for the Ohio-based osteopathic legend. “Working hard and making a positive difference in people’s lives was something I wanted and needed to do for my patients, myself, and the profession,” he admitted. “I don’t look at it as a great honor; it was just something I did.”

Dr. Bowden, who was born in Wheeling, West Virginia, but has spent the majority of his life in the Columbus area of Ohio, never harbored a childhood dream of becoming a renowned and respected osteopathic orthopedic surgeon. However, as is often the case in life, external forces play a fundamental role in where a person’s destiny lays. His father, who owned a small oil company, died from a brain tumor when Dr. Bowden was only 11. That meant a major life adjustment for an only child like Dr. Bowden, who was extremely close to his father.

“It was a real blow to me because we used to go fishing and hunting together all the time,” said Dr. Bowden, who is happily married to his wife, Ellen, and has three daughters—Erin, Emily, and Kristen. “My mom stayed home to raise me, but she had been a registered nurse and helped start the Columbus Cancer Clinic when she was in her 20s, so she was probably my greatest influence when it came to choosing a career in medicine.”

Living on a beautiful lake in a small, supportive community proved to be the perfect salve to help Dr. Bowden deal with the death of his dad. Consequently, because he had such close ties to his mother and the community, Dr. Bowden decided to sustain those bonds by attending nearby Denison University in Granville, where he conducted his premed studies. “I decided to become a physician during my freshman year in college,” said Dr. Bowden, who received his Bachelor of Science degree in 1962. “I enjoyed science and biology, and with the influence of my mother, that’s what steered me in the medical direction.”

A pivotal conversation he had with his mother also helped seal the medical school deal. “Because we owned an oil company, my mother asked me if I wanted to run the company someday, and I said absolutely not. It just wasn’t my cup of tea.”

After graduating from Denison, Dr. Bowden decided to spend the next two years at The Ohio State University doing advanced study in biochemistry. Unfortunately his goal of attending Ohio State’s medical school was dashed when the college’s dean informed him he would need to earn a Ph.D. before he’d even be considered.

That’s when fate intervened in the form of his childhood physician, who happened to be a D.O., and another osteopathic physician who, like his childhood doc, was on the staff at Doctors Hospital in Columbus but also happened to be on the board of directors at Kirksville College of Osteopathic Medicine in Missouri. “I visited the Kirksville campus, applied, and was accepted 10 days after being put on a waiting list of about 60 people,” said Dr. Bowden, who calls the Kirksville experience “the finest years of my life.”

During his first year at Kirksville, Dr. Bowden did an externship in Toledo, Ohio, that led to his epiphany about becoming an orthopedic surgeon. “I was always mechanically inclined,” he stated. “I had worked as a mechanic at Chris Craft on the lake we lived on, so once I was exposed to orthopedics, I knew that’s what I wanted to do. After my second year at Kirksville, I did an externship in Garden City, Michigan, and was able to work closely with Lloyd Mrstik, D.O., which reinforced my love of orthopedics.”

After graduating from Kirksville in 1968, Dr. Bowden did his rotating internship and orthopedic surgery residency at Doctor’s Hospital, which also afforded him at opportunity to do aspects
of his residency training at the University of New Mexico School of Medicine and Children’s Hospital in Columbus.

An Orthopedic Star Is Born

Professional success came quickly for Dr. Bowden once he completed his residency training in 1973 as he immediately joined three orthopedists and a neurosurgeon in a practice called Orthopedic & Neurological Consultants, Inc. (now known as OrthoNeuro) in Columbus and was named president of the company—a position he held from 1973 until 1992. Today, the practice comprises 28 physicians and over 150 employees. He also remained intricately involved with his residency alma mater, serving on the Doctors Hospital Board of Trustees, as chairman of its intern and residency training program committees, and in his current role as a consultant.

“I never wanted to leave the Columbus area of Ohio because it was my home and where all my friends were,” said Dr. Bowden, who stopped performing surgeries in 1995 and now spends his winters in Bonita Springs, Florida. “Doctors Hospital was and is an outstanding institution, so why would I want to leave? I wasn’t the only one who felt that way because nine of my Kirksville classmates came there along with me.”

Over the past three decades, Dr. Bowden has been an integral force in advancing the profession both within and outside of the operating room. Whether it be in his role as an AOA trustee, AOAO president, or distinguished orthopedic surgeon and educator, Dr. Bowden has had a profound impact. In addition to becoming the first osteopathic physician with training in both hand surgery and pediatric orthopedics, he became the first D.O. to join the staff of Nationwide Children’s Hospital in Columbus.

Dr. Bowden, who has been a loyal AOAO member since 1973 and served as the academy’s president in 1990-91, used his leadership year to launch an aggressive program for improving osteopathic orthopedic surgery residencies through educational programs for trainers and improved standards. Two decades later, it’s an accomplishment he still relishes.

“The most important thing I ever did for the academy was enhancing the educational component in terms of developing the mid-year meeting and the educators’ course,” said Dr. Bowden, who spent many years serving as a team physician for several Columbus-area colleges and high schools. “I think we took our specialty ahead of everyone else in the profession by teaching trainers how to train orthopedic surgeons and accepting nothing but the best in regard to the education our residents received.”

In recognition of his outstanding contributions to the AOAO, Dr. Bowden has received numerous accolades throughout the years, including the Appreciative Award in 1987, 2000, and 2004 and the Knotty Cane Award in 1994. In 1999, he was accorded the AOAO’s highest honor—the Donald Siehl Appreciative Award, which is presented to a member who, in the opinion of the board of directors, has made a major contribution to the academy during his/her career.

“Knowledge is strength,” stressed Dr. Bowden about the keys to the profession’s success. “To change a culture that benefits yourself, the profession, and society is the most important thing you can do. Becoming an osteopathic physician definitely benefited me because the emphasis was on the anatomy, structure, and function of the body. That’s why I think a D.O. orthopedic surgeon is way ahead of his allopathic counterparts.”
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AOAO New Members Honor Roll

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Education and Accomplishment on Display in San Francisco

Although this was the second unity meeting held by the American Osteopathic Association to bring together the various osteopathic specialties since the concept was originated in 2005, it marked the first time the AOAO Annual Meeting was held in complete conjunction with the AOA’s Medical Conference and Exposition.

On October 24-26, approximately 575 osteopathic orthopedic surgeons attended the AOAO Annual Meeting, which took place at the Moscone Center in San Francisco, California. Many of the attendees stated that this unique gathering gave them an opportunity to visit with old classmates they hadn’t seen in a long time. It also proved beneficial to the education courses, allowing for joint sessions to be held with other osteopathic affiliates.

This year, the AOAO inducted 15 new fellows and 5 life members. In addition, the inaugural Morton J. Morris, D.O., J.D., Osteopathic Orthopedic Education Award was presented, along with well-established accolades such as the Bob Green, D.O., Memorial Award, the Knotty Cane Award, and scientific poster and paper awards of excellence.

Another exciting component of this year’s gathering was the participation of the national Student AOAO, which held its second meeting, attended a “Saw Bone Lab” that was donated by Smith and Nephew, and coordinated a fundraiser that included selling water bottles and T-shirts. The SAOAO also coordinated its inaugural Student Poster Competition in conjunction with the annual meeting. Thanks to Jenice Grunfelder of the Florida AOAO executive office, the students are finally becoming active and establishing collegial relationships with SAOAO chapters from other osteopathic colleges around the country.

As one can observe by reading this issue of The Orthopod, the AOAO continues to grow, is financially sound, and is committed to providing its members with the best programming and advocacy possible.
**Bob Green, D.O., Memorial Award**

The Bob Green, D.O., Memorial Award is presented annually to the person achieving the highest combined score in the written and oral certification examinations for the prior year.

Recipient: Daniel Cuttica, D.O.

**Scientific Paper Award Recipients**

**First Place**

*Ryan G. Molli, D.O.*
St. John Health System Oakland
Madison Heights, Michigan

*Title:* “Computer-Assisted Navigation Software Advancements”

**Second Place**

*Sean McMillan, D.O.*
Peninsula Hospital Center
Far Rockaway, New York

*Title:* “All-Inside Meniscal Repair Using an Arthroscopic Suture Device: A Midterm Report”

**Third Place**

*Michael Sherfey, D.O.*
Botsford General Hospital
Farmington Hills, Michigan

*Title:* “The Intramedullary Hip Screw for Peritrochanteric Hip Fractures”

**Knotty Cane Award**

Since 1955, the Knotty Cane Award has been presented annually to the individual who the AOAO president felt helped him/her the most during his/her administration.

Recipient: Lee Vander Lugt, D.O., FAOAO
Presenter: Jack Lennox, D.O., FAOAO

**Morton J. Morris, D.O., J.D., Osteopathic Orthopedic Education Award**

The Morton J. Morris, D.O., J.D., Osteopathic Orthopedic Education Award, which was bestowed for the first time in 2010, is presented to that individual who, as an active or honorary member of the AOAO, exemplifies Dr. Morris’ love for our academy and furthers the education of its members.

Recipient: Carl Mogil, D.O., FAOAO
Presenter: Lee Vander Lugt, D.O., FAOAO
Scientific Poster Award Recipients

First Place
Matthew L. Sarb, D.O.
Broward General Medical Center
Fort Lauderdale, Florida

Title:
“A New Algorithmic Approach for Treatment of Hemodynamically Unstable Pelvic Fracture”

Second Place
Anand P. Panchal, D.O.
Grandview Hospital and Medical Center
Dayton, Ohio

Title:

Third Place
Benjamin J. Maxson, D.O.
Grandview Hospital and Medical Center
Dayton, Ohio

Title:
“Open Reduction and Internal Fixation with Hemiarthroplasty for Intraarticular Distal Humerus Fractures: A Case Report”

Student Poster Award Recipients

First Place
Ashley N. Startzman (OMS-II)
Nova Southeastern University College of Osteopathic Medicine - Fort Lauderdale, Florida

Title:
“Management of Nonunions with Allograft Cellular Matrix Containing Viable Mesenchymal Stem Cells”

Second Place
Tracy S. Chen (OMS-IV)
Western University of Health Sciences/College of Osteopathic Medicine of the Pacific - Pomona, California

Title:
“Primary Arthroscopic Bursectomy with Superomedial Scapuloplasty for Painful Snapping Scapula: A Case Report”

Third Place
Lisa T. Kaplin (OMS-II)
University of New England College of Osteopathic Medicine - Biddeford, Maine

Title:
“Effects of Coronal Limb Alignment and Ligament Balance on Pain and Satisfaction Following Total Knee Replacement Surgery”
Amstutz
Charnley-type Acetabular Exposure Pin Set
Used to enhance exposure in the acetabulum

Designed by Harlan C. Amstutz, MD

PRODUCT NO’S:
1200-01 [Insert/Extractor]
Overall Length: 4.5”
Pin Depth: 2”
Pin Diameter: 3.8mm

1200-02 [Pin]
Overall Length: 4.5”
Pin Depth: 2”
Pin Diameter: 3.8mm

1200-03 [Pin with Stop]
Overall Length: 4.5”
Pin Tip-to-Stop Depth: .75”
Pin Diameter: 3.2mm

Gordon Hip Resurfacing Retractor
Designed by Stuart Gordon, MD

Designed to elevate the femoral head for reaming
Design helps avoid harming the vascular tissue.

PRODUCT NO:
7649
Overall Length: 17”
Handle Length: 6.75”
Blade Width at End: 55mm

Curved Cobra Retractors for Total Hip Resurfacing
Left and right retractors can be used with posterior or lateral approach for total hip resurfacing

Designed by Henry Boucher, MD

PRODUCT NO’S:
6110-01 [Right] 6110-02 [Left]

Femoral Elevator for Total Hip Resurfacing
Designed by Henry Boucher, MD

Designed to elevate the femoral head for reaming
Design helps avoid harming the vascular tissue.

PRODUCT NO: 6030

Askins Modified Cobra Retractor with Suction Tube
Designed by Vance Askins, MD

Allows an assistant to hold the retractor and operate two instruments: the retractor for visualization of the acetabulum as well as the suction tip for suction of smoke and debris from the wound and the acetabulum

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**Legg-Calve-Perthes Disease: Where Are We 100 Years Later?**

By Charles T. Mehlman, D.O., M.P.H., FAOAO, Professor of Pediatric Orthopaedic Surgery
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**Introduction**

Legg-Calve-Perthes disease is the most common hip disease that afflicts school-age children. The disorder was described by three independent authors in 1910. Arthur Legg, Jacques Calve, and Georg Perthes might be surprised to see both how much and how little have changed in 100 years. Treatments of the past, which were mainly observational in nature, have given way to more aggressive surgical protocols that are considered to improve an otherwise poor natural history for many children. Little has changed regarding our understanding of the root cause of Legg-Calve-Perthes disease as we still know it only as an idiopathic avascular necrosis. Thankfully, active basic science and clinical research continue to focus on this common pediatric orthopaedic entity. The purpose of this article is to review where we think we are regarding diagnosis and treatment of Legg-Calve-Perthes Disease 100 years after its original description.

**Brief History**

In 1909, Johan Henning Waldenström (1877-1972) of Sweden (Figure 1) described 10 cases that in retrospect are considered to have been Legg-Calve-Perthes disease. He suspected that the disease was somehow related to tuberculosis, and it seems that because of this incorrect guess, Waldenström never got the eponymical top billing that he otherwise might have deserved. In 1910, the American Arthur T. Legg (1874-1938) described 6 cases (Figure 2), the Frenchman Jacques Calve (1875-1954) described 10 cases (Figure 3), and the German Georg Clemens Perthes (1869-1927) described 6 cases, one of which was bilateral (Figure 4). All of these authors attributed their patients’ affliction to unknown causes. Thus, from 1909 to 1910, 30 unilateral cases and one bilateral case were described.

Legg noted that the disease occurred in five to eight-year-old children and that it was usually associated with a painless limp. Calve, who considered the disease to occur in 3½ to 10-year-old children, recognized that it was not a congenital disorder, was aware that radiographic findings almost always predated the clinical symptoms, and had seen several hips regenerate over time to normal form. The first case recognized by Perthes was an 11-year-old boy, and he collected five other cases within a year of spotting the first. Perthes is credited with several other early accurate observations:

- The disease could lead to marked limitations in abduction and hip rotation.
- Acetabular and trochanteric overgrowth were not uncommon.
- Femoral head lateralization tended to occur in severe cases.
- He stressed that immobilization of the hip was to be avoided in favor of passive range-of-motion exercises.

By 1923, Waldenström suggested that the disease occurred in stages. The “initial stage” lasted between six months and one year and resulted in a dense, flattened ossific center. Next came the “fragmentation stage,” which lasted two to three years. This was followed by a “healing stage” during which the femoral head ossific center would reconstitute over another one to two years. The “growing stage” would then last until the end of skeletal growth, and then culminate in what Waldenström called the “definite stage,” which was the hip’s appearance at skeletal maturity. It remains useful to this day to inform parents that Legg-Calve-Perthes disease is not a short-term problem like the common cold or a simple fracture that “gets better” over the course of several weeks, but just like Waldenström pointed out in the 1920s, it may take 3½ to 6 years for the disease to reach the end of the “healing stage.” Thus, many of the observations of these early authors are as true today as they were nearly 100 years ago.

**Epidemiology**

Legg-Calve-Perthes disease generally occurs in children between four and eight years of age, with males being affected about four to five times more frequently than females.14 It is a unilateral hip
disease in nearly 90 percent of patients, while the other 10 percent of patients have bilateral disease. When bilateral disease does occur, it does so in a slightly staggered fashion such that the two hips appear to be in different stages of the disease.

The incidence of Legg-Calve-Perthes disease has been shown to vary substantially from one country to another. Rates as low as 3.8 per 100,000 have been reported in Korea, and very similar rates of 4.4 per 100,000 have been identified in Southern India. Rates that are four times higher than Korea have consistently been noted in Great Britain. Specifically, Scotland and England have rates measured at 15.4 and 15.6 per 100,000. A rate intermediate to Korea and the United Kingdom has been documented in Norway, with 9.2 per 100,000 children less than 15 years of age being affected. Clear answers are still lacking as to why such dramatic geographic variation exists.

**Etiology**

There are multiple theories regarding the root cause of Legg-Calve-Perthes disease. We do know that the blood flow to the femoral head is insufficient. It is thought that an abnormality of either the arterial or the venous system or perhaps both causes an interruption in the blood supply to the femoral head. A series of researchers at different centers have identified thrombotic disorders in association with Legg-Calve-Perthes disease. However, just as with the incidence of the disease, substantial variation has been documented in different geographic areas. Some centers have not identified any association whatsoever.

**Figure 5: Staging Systems for Early Disease**

**Figure 5-A: Catterall Classification**
A. Catterall
I. Anterior portion of epiphysis is affected.
II. More of the anterior portion of the epiphysis is affected.
III. Most of the epiphysis is sequestrated, with unaffected portions located medially and laterally to the central segment.
IV. All of the epiphysis is sequestrated.

**Figure 5-B: Salter-Thompson Classification**
B. Salter Thompson
A. <50 percent
B. >50 percent

**Figure 5-C: Herring Lateral Pillar Classification**
C. Herring
A. 100 percent of lateral pillar height
B. <50% loss of lateral pillar height
C. >50% loss of lateral pillar height

The associated thrombotic components are a deficiency in coagulation proteins C and S, factor VIII, fibrinogen, and a mutation in Factor V Leiden. These coagulation abnormalities are felt to lead to venous thrombosis within the femoral head and subsequent avascular necrosis.

Trauma is another potential cause of Legg-Calve-Perthes disease that has been suggested. Virtually all parents recall some significant fall or sporting event that subsequently drew their attention to their child’s hip problem. However, radiographs basically show a disease process that is not temporally related to the traumatic event. Therefore, trauma remains an ever-present but unproven risk factor. Tobacco smoke appears to be a more significant risk factor. Secondhand smoke carries a five times higher risk to those not exposed to smoke, with Legg-Calve-Perthes. Although previously suggested by some authors, no statistically significant association exists between lower socioeconomic status and Legg-Calve-Perthes disease.

**Pathology**

Once a critical portion of blood flow to the femoral head has been compromised, the femoral head will begin to take on a pathologic shape characterized by flattening, fragmentation, and collapse. Modern basic science research regarding Legg-Calve-Perthes disease has revealed that the capital femoral epiphysis of piglets did not experience extensive damage following isolated disruption of the epiphyseal vasculature. This raises questions regarding the need for simultaneous involvement of the extra-epiphyseal vasculature. Similar piglet research has documented increased cartilage thickness and diminished remodeling potential of femoral heads following ischemic necrosis. In humans, healing will begin to occur when revascularization and associated reossification takes place, which varies from patient to patient. The final shape of the hip depends on multiple factors, which seem to include patient age, proportion of femoral head involvement, and extent of lateral pillar involvement. For some children, the femoral head may return to normal, while in others, coxa magna, premature physisal closure patterns, irregular femoral head formation, and osteochondritis dissecans may develop nonspherical reossification of the femoral head and will cause it to no longer move smoothly and naturally within the acetabulum. Anthony Catterall refers to this as “unstable motion.” This concept will be described further in the treatment section.

**Presentation and Diagnosis**

The signs and symptoms of Legg-Calve-Perthes disease can be rather subtle and may not be immediately recognized by parents or other caregivers. They may simply perceive a slightly abnormal gait, and since there is no accompanying complaint of pain, little attention may be paid to it. If hip/knee/groin pain is present, it may worsen towards the end of a strenuous day and is often relieved by rest. Regarding the physical exam, children should be observed while walking in order to assess their gait pattern. Children with Legg-Calve-Perthes disease often present with a Trendelenburg gait, otherwise known as an abductor lurch. The range of motion of the child’s hip needs to be carefully examined and quantified. A loss of abduction and internal
The stage of the disease and proportion of the femoral head involved are considered to be important determinants of the abnormality of the physical exam.

The diagnosis of Legg-Calve-Perthes disease is determined by the physical exam along with plain film findings. Anteroposterior (AP) and lateral (often referred to as frog lateral) radiographs of the pelvis are taken to assess the changes taking place within the femoral head. The radiographs will allow one to estimate what percentage of the femoral head is involved as well as help determine which Waldenström stage is present (initial, fragmentation, healing, and growing). Richard Bowen has referred to these same stages as: necrotic, fragmentation, reossification, and remodeling. As mentioned earlier, it can take up to six years for a patient to progress from the initial stage to the healing stage.

Once the diagnosis is made, several visits may be necessary for the orthopaedic surgeon to properly classify the disease using one of several classification systems aimed at segregating patients into either a lower or a higher risk group. The most commonly discussed classification schemes used at the “front end” of the disease are Catterall, Salter-Thompson, and Herring (Figure 5). In general, the Catterall and Salter-Thompson systems use different approaches to grade the radiographic extent of femoral head involvement. The more head involvement, the more concern one has for the future of the femoral head. The Herring classification system grades changes seen radiographically in the lateral pillar height. The Herring classification has a strong correlation to the patient’s long-term outcome. Group A patients do the best, Group B have intermediate outcomes, and Group C the worst.

More recently, Herring and his fellow researchers have added a new category termed “B/C border,” and these hips along with those in the “B” category seem to benefit from surgical intervention when the children are over eight years of age. The “back end” of Legg-Calve-Perthes disease is considered to be a final outcome at the end of skeletal maturity. The Stulberg classification remains the most commonly applied “back end” classification scheme for Legg-Calve-Perthes disease (Figure 6). Based on the best available outcome studies, Stulberg I and II represent the best results and Stulberg III, IV, and V have significantly worse results. One might hedge further and qualify Stulberg I and II as good results, Stulberg III as fair results, and Stulberg IV and V as poor results.

Multiple authors have now studied the inter-rater and intra-rater reliability of the classification systems for Legg-Calve-Perthes disease. As recently as 2010, the Herring system ranged from moderate to good, while the Catterall and Salter-Thompson were noted to be less reliable. The Stulberg system was marginally acceptable in reliability, with kappa values of 0.65-0.74.
Wiig and his fellow researchers analyzed the Stulberg system and found moderate agreement, with kappa values of 0.57/0.51. These same researchers also established the value of segregating the Stulberg system into three groups (I’s and II’s, vs. III’s, vs. IV’s and V’s), achieving 81 percent agreement among raters. Dr. Herring himself evaluated the lateral pillar (Herring) and Stulberg systems and found Kappa values in the 0.75 and 0.82 range, which represent excellent agreement.

Treatment Options

The course of treatment must be determined individually for each child, but general treatment principles do exist. The primary goal is to prevent deformity by assuring containment of the femoral head and maintaining satisfactory range-of-motion of the hip joint. Operative and non-operative options are available for children depending on their age and the severity of the disease. Non-operative treatments include activity restriction, rest, and non-weight bearing methods, such as wheelchairs, crutches, or Petrie casting (Figure 7). Operative treatments may include procedures such as medial release, greater trochanteric apophysodesis, varus osteotomy, Salter pelvic osteotomy, and lateral shelf arthroplasty (Figure 8). All of these treatment methods are aimed at improving containment and range-of-motion of the hip joint.

Non-operative treatment is mainly utilized for patients in the early stages of Legg-Calve-Perthes. Based on the prospective study conducted by Tony Herring, patients with Herring B and <eight years of age do quite well long term, irrespective of their treatment. However, it must be remembered that this classic study omitted children less than six years of age. A surgical approach is indicated for children in the older age group, with more than one half of the femoral head involved and when non-operative treatments failed. Those with Herring B or B/C hips who are greater than eight years of age do better with operative treatment. Unrelated to age and treatment, those patients in group C have less favorable outcomes.

Prognosis

The main prognostic factors are the patient’s age at onset, degree of limitation of range of motion, extent of involvement of the femoral epiphysis, and additional “Head at Risk” signs. The “Head at Risk” signs developed by Catterall provide a rough guide to prognosis. They are lateral subluxation of the femoral head, a radiolucent V in the lateral aspect of the epiphysis (the
so-called Gage sign), calcification lateral to the epiphysis, and a relatively horizontal physeal line. Children diagnosed with Legg-Calve-Perthes disease while young often have the best outcome. Some authors have indicated that prognosis before the age of six is favorable, with 80 percent having a positive outcome. Other authors have focused on children less than five to six years of age with Legg-Calve-Perthes disease and found 30 to 50 percent of Herring C hips ended up with bad results (defined as a ≥ Stulberg III). Thus, not all young patients follow a benign course.

Conclusion
Although Legg-Calve-Perthes disease cannot be prevented, progress has been made regarding risk stratification of the disease and minimizing its deleterious effects on the hip primarily via operative treatments. Current basic science research efforts and clinical studies hold out the promise of providing patients with even better long-term results in the future.

**FIGURE 8-D**
Four months status-post shelf arthroplasty.

**FIGURE 8-E**
An 8.5-year follow-up AP Pelvis illustrating Stulberg I outcome.

**FIGURE 8-F**
An 8.5-year follow-up frog leg Pelvis illustrating Stulberg I outcome.

**FIGURE 8-G**
An 8.5-year follow-up clinical photo of active abduction while standing.

**FIGURE 8-H**
An 8.5-year follow-up clinical photo of internal rotation in a prone position.
References


2011 AOAO Calendar of Events

April 2, 2011
19th Annual Osteopathic Orthopedic Educators’ Course
Courtyard by Marriott
Chicago, Illinois

May 13-15, 2011
51st Annual Postgraduate Seminar
Marriott Camelback Inn
Scottsdale, Arizona

October 20-23, 2011
AOAO Annual Meeting
Chicago Marriott Downtown
Chicago, Illinois

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