

CHAPTER 11

THE AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS

Introduction

The American Academy of Orthopaedic Surgeons (AAOS, or the Academy) was formed in 1933 by a group of orthopaedic surgeons who recognized the need for a national organization (Figure 55). (See chapter two for a more detailed accounting of the Academy's founding.) Without it, orthopaedics surely would have remained a small subset of general surgery and the revolution in musculoskeletal surgery in the last half of the 20th century would have occurred in a much different fashion. The Academy's inclusive fellowship of musculoskeletal surgeons facilitated this revolution, providing a forum for its participants to exchange new methods and advance the interests of orthopaedics. Like any large organization, however, it has had to balance the interests of the membership as a whole against the subspecialty interests of some members within it. The orthopaedic specialty societies have provided a powerful magnet to attract members seeking the fellowship of orthopaedic surgeons interested in narrower segments of orthopaedics. Thus, the Academy has worked to communicate the importance of membership in broad-based regional and national organizations. The Academy has encouraged the growth of state and regional orthopaedic societies. Also, in 1973, it formed the Board of Councilors that now consists of delegates from all 50 states in numbers proportional to the numbers of orthopaedic surgeons in each state, in the territories, and the military. In 1984, it formed the Council of Musculoskeletal Specialty Societies (COMSS) with representatives from the various subspecialty groups. In 2006, COMSS was renamed the Board of Orthopaedic Specialty Societies (BOS). Both the Board of Councilors and the Board of Orthopaedic Specialty Societies appoint members to the Board of Directors of the Academy. The AAOS also offers support services to other health care professional groups such as orthopaedic nurses, administrators, physician assistants, and special identity societies such as the Society of Military Orthopaedic Surgeons, the Ruth Jackson Orthopaedic Society, most of whose members are women, and the J. Robert Gladden Society, most of whose members are from racial and cultural minority groups.

Regional and State Orthopaedic Societies

The reputed first regional orthopaedic society, the Interurban Orthopaedic Club, held its first meeting in Boston in November 1907. A note in *The*

Tech, a student newspaper at the Massachusetts Institute of Technology (MIT), reported: "This club is an association of the younger orthopaedists of Boston, New York, Philadelphia, Baltimore, and other cities." Herman Marshall, a professor at MIT, gave a presentation on the "causation of chronic arthritis." The Interurban Orthopaedic Club still exists. It has one officer, a managing director, a position currently held by Edward Hanley of Charlotte, North Carolina.

The Clinical Orthopaedic Society (COS), founded in 1912 as the Central States Orthopaedic Club, offered "observations in different cities of matters related to orthopaedic surgery and the free discussion amongst its members of orthopaedic methods and teaching." COS originally drew orthopaedists from Illinois, Indiana, Iowa, Kansas, Louisiana, Michigan, Minnesota, Missouri, Nebraska, Ohio, Tennessee, and Wisconsin, and the club featured case presentations at its meetings. Seven members of the COS had a lasting effect on orthopaedic surgery, having promulgated the idea of a national organization, then actually founding the Academy. In fact, the AAOS held its first meeting in conjunction with the COS in 1933. The COS still holds annual meetings but has become a national organization and limits its membership to 750. It still requires its members to present papers accompanied by a demonstration with patients in person (by video if the patients cannot attend the meeting). The role of a regional orthopaedic society for the Midwest has been assumed by the Mid-America Orthopaedic Association.

The Western Orthopaedic Association was founded in 1932 as a result of several joint meetings of the Los Angeles and San Francisco Orthopaedic Clubs. The Los Angeles club was organized in 1922 as the first orthopaedic club west of the Mississippi River by Charles Leroy Lowman, Ellis Jones, Halbert Chancel, Alfred Gallant, Steele Stuart, John Dunlap, and John Wilson, Sr. The San Francisco group (Walter Baldwin, Howard Markel, Leonard Ely, Arthur Fisher, James Watkins, Thomas Stoddard, Edward Bull, Jack Haas, and James McChesney) organized their society a year later. The two clubs held joint meetings for several years but decided to merge in the early 1930s. The original constitution of the Western Orthopaedic Association established three chapters that subdivided the membership among three districts: northern (Washington, Oregon, British Columbia), central (northern California, Nevada, Utah), and southern (southern California, Arizona, New Mexico, Hawaii). The districts have since increased from 3 to 19.

The Eastern Orthopaedic Association began in 1970 at a Quad City Orthopaedic Club meeting in Washington, D.C. Orthopaedic surgeons from New York, Philadelphia, Baltimore, and Washington, D.C., had met informally but in large numbers for a few years; Howard Steel, a Philadelphian, made a stirring speech at the 1970 meeting that galvanized the membership into forming the Eastern Orthopaedic Association. It meets annually and, like its western counterpart, offers a scientific meeting and diverse social activities in a resort location.

The Mid-America Orthopaedic Association and the Southern Orthopaedic Association began in 1982 and 1983, respectively, with the

same kind of mission statements that include education along with “fellowship and socialization among members.” Although generally serving the Midwest and Southeast respectively, these associations overlap somewhat, both offering membership to orthopaedic surgeons in 28 states.

In addition to these regional societies, orthopaedic surgeons are organized into 50 state societies. California’s is the largest and Wyoming’s is the smallest. State societies work locally on legislative and regulatory issues affecting orthopaedic surgeons unique to each state. Each state society also can send representatives to the Board of Councilors of the AAOS. Many of the state orthopaedic societies have fairly recent origins, but several have been in existence for decades.

The Academy’s Board of Councilors

In the early 1970s, some members of AAOS felt that the Academy’s the Board of Directors had lost touch with the rest of the Academy’s fellowship. At several rancorous Annual Meetings, some members attempted a repudiation of the leadership, which they claimed had long ignored the rank and file. To avert further divisiveness, the directors of the Academy organized the Board of Councilors, providing the membership at large with a forum for discussing problems affecting orthopaedic surgeons and for offering advice to the Academy leadership through a resolution process. The chair, chair-elect, and secretary of the Board of Councilors by virtue of their offices became members of the Board of Directors of the Academy; in this way, among others, the members of the Academy had access to the leadership of the AAOS. The Board of Councilors held its first meeting in 1973, electing Eugene Nordby as president, Herbert Stark vice president, and Jerome Cotler as secretary. Generally, each year, the officers move up in the leadership line.

Since its inception, the Board of Councilors has convened three times a year, once at the Annual Meeting of the Academy, once in a resort-type location, and once in a major city. Since 1988, that city has been Washington, D.C., where the councilors are expected to visit their state’s senators and congressmen to discuss national issues important to orthopaedic surgeons and their patients.

Orthopaedic Specialty Societies

In the early 1980s, the Board of Directors of the Academy, recognizing the strong tendency toward specialization within orthopaedics, launched an initiative to retain specialists within the larger national framework of orthopaedic surgery. The directors invited the presidents and other representatives of orthopaedic specialty societies to discuss ways to prevent increasing fragmentation of the specialty. The directors decided that the Academy would sponsor a Council of Musculoskeletal Specialty Societies (COMSS) that, like the Board of Councilors, would have at least two seats on the Board of Directors of the Academy. Moreover, a full day at the

Academy's Annual Meeting would be devoted to the specialty societies, and each would have the opportunity to present a program during Specialty Day at the Annual Meeting. The criteria for an organization's membership in COMSS were carefully defined, and because members and guests at the Academy's Annual Meeting would have to buy tickets to attend a specialty society's presentation, Specialty Day generally became a profitable endeavor for the societies. Many of the specialty societies are housed at the AAOS headquarters building; while some are managed by AAOS staff members, others are totally independent of the Academy.

Related Societies

There are numerous non-physician orthopaedic organizations, each with its special focus and individual membership: orthopaedic physicians' assistants, orthopaedic nurses, and orthopaedic administrators, for example.

The American Society of Orthopaedic Physicians' Assistants was established and incorporated in 1976. It holds meetings annually and has developed a National Board for Orthopaedic Physicians' Assistants. It administers an examination and has eligibility requirements of five years of experience working for a board-certified orthopaedic surgeon. The examination covers anatomy, physiology, musculoskeletal conditions, history taking, physical examination, imaging studies, laboratory investigations, and office treatment procedures as well as perioperative care.

The American Academy of Physician Assistants (AAPA), established in 1968, represents physician assistants (PAs) in all medical and surgical specialties. Today there are almost 70,000 PAs with more than 5,000 certified PAs who practice in the orthopaedic field. There are 134 accredited PA educational programs nationwide that run an average of 26 months. Most students have a bachelor's degree and several years of health care experience. This background is necessary to prepare for the rigorous PA curriculum, which consists of classroom and laboratory instruction in the basic, medical, and behavioral sciences. Students take clinical rotations in a number of specialty areas. After graduation from a certified PA program, PAs are required to pass the Physician Assistant National Certifying Examination, which assesses their general medical and surgical knowledge. The AAPA has a joint national office with the Association of Physician Assistant Programs in the Washington, D.C., area.

The National Society of Orthopaedic Administrators (BONES Society) was founded in 1969 by four orthopaedic administrators. It also holds an annual meeting but does not offer certification or an examination. The program for the 2006 BONES Society meeting in Phoenix included sessions on "Orthopaedic Coding: Getting The Right Reimbursement," "Orthopaedic Management," "Joint Ventures," "Cost Management," and other business topics germane to administration of an orthopaedic practice. The Academy provides BONES with administrative services.

Founded in 1980, the National Association of Orthopaedic Nurses (NAON) holds an annual meeting at which members and guest speakers

present papers on issues pertinent to the role of the orthopaedic nurse. In recent years, sample topics have included “A Nurse-Directed Osteoporosis Prevention Center: 20 Years and Running,” “It’s What Matters to Patients—Working a Partnership with Patients to Improve Care,” “Unleashing the Leadership Within,” and “Advancing Evidence-Based Practice in Orthopaedics through Informatics.” Many other papers cover more directly clinical subjects such as pain management, deep vein thrombosis prevention and treatment, and the psychological aspects of caring for adolescents undergoing spinal fusions for scoliosis. NAON also presents continuing education courses during the Academy’s Annual Meeting.

NAON offers a certifying examination through the Orthopaedic Nurses Certification Board. The eligibility requirements for taking the examination include a full, unrestricted RN license and a minimum of 1,000 hours of work experience in orthopaedics in the past 3 years. Members of NAON also have access to the association’s official journal, *Orthopaedic Nursing*; many of its articles qualify for continuing education credits.

Special Interest Orthopaedic Societies

The AAOS also provides staff and services to groups organized around factors other than specialty, region, or services related to orthopaedic surgery. These include the Ruth Jackson Orthopaedic Society, the J. Robert Gladden Orthopaedic Society, and the Society of Military Orthopaedic Surgeons.

When the Academy was founded in 1933, Ruth Jackson was in active practice with Arthur Steindler treating polio patients at the University of Iowa. All male orthopaedic surgeons so engaged at that time were ensured membership in the Academy, but Jackson, despite her qualifications, was denied automatic entrance to the Academy. She had to pass the board examination first, and did so in 1937. She was, in fact, the first woman to pass the board examination in orthopaedics and was the first female member of the AAOS.

Jackson practiced for 57 years. She published numerous articles and earned a solid reputation as a serious spinal specialist with her book *The Cervical Syndrome*. She treated 15,000 neck injuries, which enabled her to write authoritatively on the subject of whiplash and more severe cervical spine trauma. Ruth Jackson died in 1993.

In 1983, a group of women who practiced orthopaedics founded the Ruth Jackson Orthopaedic Society “as a support and networking group for the growing number of women orthopaedic surgeons.” The organization began with 42 members and has grown more than tenfold. The Ruth Jackson Orthopaedic Society meets simultaneously with the AAOS Annual Meeting and holds a separate biannual meeting as well. It features mentoring, networking, and listings of job opportunities for its members. The society also offers the Jacquelin Perry, MD Resident Research Award and the Dr. Alexandra Kirkley RJOS Traveling Fellowship Award. Jacquelin Perry began her professional career as a physical therapist at Walter Reed Hospital in Washington, DC. She served as such for 5 years before entering

medical school at UCLA. After an orthopaedic residency at the University of California in San Francisco, she joined the staff at the Rancho Los Amigos, where she remained for the rest of her working years. She published prolifically on poliomyelitis, cerebral palsy, myelomeningocele, gait analysis, and other subjects, and overall produced more than 200 peer-reviewed articles. She participated in the development of the halo vest for the support of the collapsing and unstable cervical spine with her colleagues Dr. Verne Inman, Dr. Vernon Nickel, and Dr. Robert Waters. Alexandra Kirkley practiced at the University of Western Ontario as a sports medicine specialist and had a strong interest in research. She had a brilliant reputation as research scholar and investigator and won numerous grants to support her studies on shoulder injuries and their treatment. Her early death at the age of 40 in a small plane crash in 2002 deprived orthopaedics of a physician scientist who almost certainly would have made significant contributions to orthopaedics.

J. Robert Gladden in 1949 became the first African American certified by the American Board of Orthopaedic Surgery and the first elected to fellowship in the Academy. He was born in Charlotte, North Carolina, in 1911 and graduated from Long Island University in 1936 and from Meharry Medical College in the early 1940s. He obtained residency training in orthopaedics at Howard University and eventually became chief of orthopaedics there. The society named for him is a “pluralistic, multicultural organization designed to meet the needs of minority orthopaedic surgeons.” Augustus White and Charles Nelson served as the program chairs for the inaugural scientific meeting of the J. Robert Gladden Orthopaedic Society in Lausanne, Switzerland, in July 2006. The meeting covered various aspects of musculoskeletal health disparities among women and minorities, such as etiology, evidence for disparity, and how to reduce or eliminate them. The program also considered how to increase diversity in orthopaedic faculties and residency programs. A forum was also held debating New Jersey Law S-144, which requires New Jersey physicians to take cultural competency training to obtain or retain a medical license from the New Jersey State Board of Medical Examiners. This law has evoked considerable controversy among physicians in general. With a membership in 2007 of 293, the J. Robert Gladden Orthopaedic Society also assists the Academy in recruiting minority medical students to consider orthopaedics as a career.

The Society of Military Orthopaedic Surgeons (SOMOS) was founded in 1958 “to provide a forum for the interchange of medical knowledge as it relates to the practice of orthopaedic surgery in the military.” It holds an annual meeting, supports a newsletter (the *SOMOS Sentinel*), and offers membership to any orthopaedic surgeon who has served in the armed forces, including active duty, retired, or honorably discharged members. The programs of the meetings naturally contain a heavy emphasis on trauma-related subjects but also show that the members of SOMOS maintain an interest in oncology, basic sciences, and pediatrics.

SOMOS keeps military orthopaedists apprised of changing conditions and developments in continued deployments of American military

forces in theaters of operations worldwide. At this writing, these include Afghanistan, Iraq, North Africa, and humanitarian operations for tsunami relief in Indonesia, relief after hurricanes Katrina and Rita, and earthquake relief in Pakistan. SOMOS has a unique and essential role in dissemination of information among orthopaedic surgeons serving in the military.

The AAOS Annual Meeting

The AAOS holds one of the most spectacular annual meetings of any medical or surgical organization in the world (Figure 56). In 2007, more than 30,000 people registered for the five-day event, which featured 33 symposia, 525 papers, more than 500 poster presentations, and 183 instructional courses. In addition, 19 individual orthopaedic specialty societies meet on Specialty Day. The Orthopaedic Research Society also meets on the days immediately preceding the Academy meeting. Widely recognized by medical specialty societies as innovative, the Academy's Annual Meeting has been modeled by others. Hands-on surgical skills courses have been offered from time to time, but in recent years most surgical instructional courses are done by skilled faculty and closed-circuit television. A highlight of the meeting is the series of presidential guest speakers who have included well-known politicians, writers, and commentators, and even a poet. In times less commercial than the first part of the 21st Century, the Academy's Annual Meeting included a display of homegrown inventions to be shared freely with colleagues in orthopaedic surgery; these annual displays were organized by the then Committee on Gadgets. Today the exhibit halls house colossal technical exhibits mounted by companies that compete for the orthopaedic surgeon's attention. Manufacturers' exhibit booths include sections for demonstrations, practice surgery on plastic models, and beautifully presented displays of devices and instruments. Approximately 450 companies exhibit each year.

The enthusiasm and energy at the annual meetings are almost palpable as Academy Fellows, residents, international visitors, and guests attend lectures and gravitate to the manufacturers' exhibits. The prestige of being selected to present a paper or serve as a course instructor attracts many applicants to compete for places on the program. The obvious benefits of selection eventually led to a system of blind review of papers so that those who evaluated submissions theoretically would not know the authors' identities. The Annual Meeting thus creates a democratic forum at which the work of any orthopaedic surgeon can be presented. When a discipline, technique, or method has achieved sufficient importance, the members of the program committee can organize a group of speakers to present a symposium on the subject. The instructional courses, on the other hand, provide members with the opportunity to learn about established state-of-the-art and gold-standard techniques from acknowledged experts. The symposia and instructional courses are evaluated by the attendees, and when the information is poorly presented, the selection committee seeks out new presenters

and instructors. The faculties and presenters at these events are largely from the United States but, when appropriate, are drawn from centers throughout the world. This merit-based selection process has served the Academy and its fellows well in providing excellent ongoing instruction during an era of profound changes for the specialty. It is, in fact, difficult to imagine a format that could have accomplished this any better. The revolutions in total joint arthroplasty, arthroscopic surgery, fracture care, spine surgery, and other aspects of modern musculoskeletal surgery emerged from this unique educational forum. The Academy has been the focus for the multiple other clubs, societies, and associations that feed into it and rely on its services. Much of this revolves around the Annual Meeting, arguably the Academy's most important component.

The Academy meeting venues have changed over its 75-year existence. During the early years, the meeting usually took place in Chicago at the Palmer House Hotel. As meeting attendance surged, the AAOS had to find larger facilities to accommodate it. By the late 1960s, it had outgrown the Palmer House and moved on to cities such as Las Vegas, San Francisco, Atlanta, New Orleans, and Orlando, which had capacious convention centers and hotel facilities for large crowds of physicians and exhibitors. The Academy had scheduled the 2006 meeting for New Orleans, but Hurricane Katrina damaged its convention center, hotels, and services so severely that the city could not host the meeting. Ironically, this forced the Academy to move back to Chicago in 2006 for its Annual Meeting after more than a 30-year absence, but to McCormick Place, one of the world's largest convention centers, rather than to the Palmer House. Despite the date and location changes in 2006, attendance reached levels similar to previous years, a good indication of the current vitality of the organization. Successfully moving such a large meeting in less than six months is evidence of the skills of the Academy's meetings staff.

The Academy's Publishing Program

The Academy has been publishing educational books for orthopaedists and others for more than 70 years. The most popular series, or at least the most long-lived, is the *Instructional Course Lectures* volumes. Since 1942, there has been an annual volume published, based on courses given at the Academy's annual scientific meeting. First published in 1942, the series has continued in each year that there has been an Annual Meeting of the Academy. In 1986, the Academy itself began publishing these books as opposed to using an outside commercial publisher. The Academy has had a publications committee since 1947 when, according to board of directors minutes, there were so many publications being published that a group charged to organize and oversee the process had become mandatory.

The Academy's most popular publication is not aimed at orthopaedic surgeons. *Emergency Care and Transportation of the Sick and Injured* was first published in 1971 as a training text for persons desiring to become emergency medical technicians (EMTs). Based on a series of

courses for “ambulance attendants” developed by the Academy’s Committee on Injuries in the mid-1960s, the book, now in its ninth edition, became a best seller in vocational publishing. The first edition appeared at the same time that national training standards for ambulance drivers were being developed by the U.S. Department of Transportation; prior to that time there were no training standards for ambulance drivers, and ambulances often were converted station wagons rather than vehicles designed specifically for emergency services. Given its appearance at such a critical time, the Academy’s book became the text of choice for literally hundreds of thousands of potential EMTs in its early years. With early editions sporting an orange cover, the book became known as the “Orange Book” and over the years it has had a tremendous impact on pre-hospital care in the United States and throughout the world, and has been translated into five languages. Orange remains the de-facto color symbolic of prehospital care, largely because of the Orange Book. Through a co-publishing arrangement with Jones and Bartlett Publishers of Sudbury, Massachusetts, the Orange Book line of textbooks and ancillary publications includes more than 40 titles.

Similarly, a book based on a concept by Montana orthopaedic surgeon Robert K. Snider called *Essentials of Musculoskeletal Care*, first published in 1997, is written for primary care physicians, rather than orthopaedists. With an audience much larger than the orthopaedic community, *Essentials* has also been extraordinarily successful. It offers advice on basic musculoskeletal conditions for the nonorthopaedist.

At an educational workshop in 1979, the consensus among the participants was that the ever larger flood of orthopaedic information was exceeding the capability of orthopaedists to keep up. In response, the Academy developed a home study program entitled *Orthopaedic Knowledge Update (OKU)*, which consists of a textbook based on three years of articles appearing in the orthopaedic literature and a general self-assessment examination. Published every three years since 1984, the highly successful *OKU* series presents a comprehensive view of new developments in the field and has spawned the publication of eight specialty *OKUs*.

Through its Committee on Evaluation, the Academy has been publishing self-assessment examinations since 1973. Its program consists of the Orthopaedic Self-Assessment Examination, 13 Orthopaedic Special Interest Examinations (OSIEs), and the Orthopaedic In-Training Examination. The orthopaedic self-assessment examination covers the entire field and consists of 250 questions. Each special interest examination on such topics as adult reconstruction, sports medicine, and spine and pediatric orthopaedics has 150 questions. The OSIEs are available on the Internet and on CD-ROM. The Academy is one of only two medical specialty societies that publishes an in-training examination for residents; in all other specialties the in-training examinations are products of the respective certifying boards.

In 1992, the Committee on Publications presented to the Council on Education a proposal to begin publishing an orthopaedic review journal, the *Journal of the American Academy of Orthopaedic Surgeons (JAAOS)*. The

proposal approved by the board of directors that year described a bimonthly publication of some 60 pages of editorial content with subjects chosen in light of an overall orthopaedic curriculum, and with invited authors. Under the leadership of John W. Frymoyer, the journal's first editor, *JAAOS* immediately became popular with Academy members. In fact, the concept of publishing articles only from invited authors soon fell by the wayside as numerous orthopaedic surgeons and others submitted articles for consideration in the new journal. A sign of its continuing popularity is that *JAAOS* moved to monthly publication in 2005.

The Academy's Continuing Medical Education (CME) Programs

Continuing medical education programs have included courses for physicians and non-physicians since 1964. Following its first course for ambulance attendants in New York City in September 1964, the Academy presented its first course for physicians: a trauma course in Atlanta in November 1964. In the early days of AAOS CME, course chairs were given great responsibility for their courses; beyond recruiting other faculty members, they usually made hotel arrangements and handled course registration within their own office, as the Academy lacked the staff to provide these functions that now seem commonplace.

One of the largest single efforts of the Academy in this area was a series of courses in the early 1970s designed to instruct orthopaedic surgeons on the proper use of chymopapain injections in the care of low back pain patients. Prohibited by the Food and Drug Administration from teaching chymopapain procedures until the drug was approved by the FDA, and given the large public demand for such treatments at the time, the Academy was challenged by tremendous demand and limited resources. Although the courses eventually met the demand, it took several years to train all those who desired this type of training. Although this type of procedure generally has fallen from favor, the training the Academy provided was a tribute to the volunteer faculty and the administrative staff.

Other courses on a wide variety of topics have been a staple of the Academy's program throughout the years. Organized by relevant CME committees, these programs generally address one specialty area in orthopaedics, as conceived by the course director and codirector and the volunteer faculty, which numbers approximately 20 orthopaedic surgeons per course.

In 1993, the AAOS joined forces with the Arthroscopy Association of North America (AANA) to construct and outfit the Orthopaedic Learning Center at a total cost of approximately \$10 million. Built at the Academy's headquarters building in Rosemont, Illinois, the OLC consists of a 5,600 sq. ft. surgical skills lab with 24 fully outfitted learning stations, along with appropriate space for instrument storage and preparation as well as separate facilities for storage and preparation of cadaveric specimens. In addition there are two lecture rooms and locker rooms, and in late 2006 the lab's audiovi-

sual equipment was upgraded to high-definition quality. The Arthroscopy Association of North America and the Academy use the OLC for courses approximately 28 weekends per year. Other weekends and during the week, the OLC is used by industry, other medical societies, and individuals for courses and research and development requiring cadaveric specimens.

In the mid-1990s, the Academy helped its members understand the dynamics and deal with the complexities of managed care organizations through a series of seminars and conferences. These educational programs included such titles as “Managed Care, The Basics” and “Winning at Risk.” AAOS also has published monographs on managed care, an audio series of conversations with practice management experts, and numerous articles and items at the Practice Management Center on its Web site.

The Academy’s Electronic Media Program

Other technologies the Academy has used over the years have included sound-slide programs, 16mm movie films, and videotapes. Each of these media has been featured at the Academy’s Annual Meeting, with Academy members producing the programs and submitting them to the relevant Academy committee for possible selection to be shown at the meeting. Most orthopaedists in the United States are familiar with the sight at the Academy’s meeting of large numbers of orthopaedic surgeons sporting headsets and peering intently at a computer screen or video monitor, as they learn new techniques or review the work of the orthopaedists who developed the program. After the Annual Meeting, the authors of the programs donate them to the Academy, which makes copies for sale to orthopaedists who could not attend the meeting.

The Academy was the first medical specialty society to publish on CD-ROM. In 1987, the editor of *Orthopaedic Knowledge Update 3*, Dr. Robert Poss suggested that the Academy publish the full text and illustrations of all three *OKUs* on a CD-ROM as a new product to accompany *OKU 3*. He had learned about CD-ROM publishing technology by reading a story in the *Harvard Crimson* that the classics department at Harvard, had captured much of the knowledge of ancient Greek civilization and published it on a series of CD-ROMs. That storage capacity intrigued him as he thought about *OKU 3*. In addition to the text and illustrations of three full-length textbooks, the CD-ROM published in 1990 also included many of the original articles upon which the textbook was based. In embracing this new publishing technology, the Academy was challenged not only by the technical intricacies of capturing the content of three books, but with educating its potential market about what a CD-ROM was and how to access the data contained on it. Perhaps because orthopaedic surgeons often like new technology, the CD-ROM publishing program was a success from the outset with sales of the first CD-ROM exceeding 2,000 copies.

Other trendsetting electronic publishing by the Academy has included interactive multimedia education programs beginning in the mid-1990s. “Orthopaedic Grand Rounds” was a subscription series covering most specialties in orthopaedics and included patient cases selected by subject mat-

ter experts who guided the learner through the decision-making process in the care of these patients. With questions and answers relating to the individual patients, these programs included illustrations, x-rays, and videos of procedures. As CD-ROMs gave way to DVDs, storage capacity increased, which allowed for higher quality video and more complex educational programming. A series of extremely rich multimedia programs debuted in 2003 with "The Athlete's Knee," in which the learner could choose from a number of different learning experiences. Each of 10 different patients presents with a different chief complaint, mechanism of injury, patient history, and set of comorbidities. With the vast set of learning resources included on the DVD, the program includes primary research articles, surgical videos, illustrations, and imaging studies related to each patient problem.

The Academy Online

The AAOS first established its Internet presence in June 1995 with the launch of a very primitive site. Ahead of its time, AAOS was one of the first associations to do so. Over time, the site grew in size (to 30,000 static pages before a recent re-design), mission, and complexity. In 2000, the AAOS launched both Your Orthopaedic Connection (the AAOS patient education Web site) and the Personal Physician Web Sites (OrthoDoc). Using OrthoDoc and AAOS-supplied templates, any member can build a Web site for patients and the public dynamically linked to Academy resources. Later in 2000, template-driven Group Practice Web Sites were also made available to the members. The site allows the public to Find an Orthopaedist by searching the Academy's database of members by name, city and country. The AAOS member Web site was redesigned first in 2001 and subsequently in 2006.

The AAOS Web site is extensively interfaced with the internal association management system software. The software uses the Academy database to authenticate members and users of the Web site, to determine product pricing in the online catalog, for dues payments, course registrations, Find an Orthopaedist, the private membership directory, Annual Meeting registrations, committee appointment program applications, committee roster listings, address changes, and for other ancillary data. Information changed in the database is immediately reflected on the Web site. Likewise, information collected on the Web site is automatically transferred into the database. Since 2003, it has been mandatory that all poster and podium session abstracts be submitted online. The number of abstracts submitted in 2003 was 3,289. By 2007, this number had increased to 4,069.

The AAOS has used its Web site for E-commerce applications since 1996. In 2006, more than \$9.3 million was garnered via the Web site, nearly 20 percent of the Academy's entire yearly revenues. This includes product sales, course registrations, dues payments, Annual Meeting registrations, and placement service fees. With online Annual Meeting registration first offered for the 1998 meeting, in 2007 almost 8,800 members and allied healthcare professionals pre-registered using the Web site (72% of the total).

The Academy has also used the Internet for educational purposes with its members. In 2001 it established *Orthopaedic Knowledge Online*, as a member-benefit service for continuing medical education. Originally conceived as a type of just-in-time education, *OKO* was intended to be a refresher for those wanting to review videos of surgical procedures. However, as *OKO* developed, it was expanded to include a template-driven online textbook or journal. Under the direction of William Grana and John Sarwark, *OKO* consists of more than 100 clinical topics, most with accompanying videos, a text-based review section, and continuing medical education activities based on clinical topics. *OKO* has forged relationships with nine specialty societies for the development and review of content. In addition, it has a virtual bookstore with selected AAOS texts available online, and a link to the Academy's Educational Resources Catalog. With more than 20,000 active users, *OKO* is updated at least monthly.

The Academy's Growing Presence Internationally

During the late 1980s international orthopaedic surgeons started attending the AAOS Annual Meeting on a regular basis. From a modest 250 attendees in 1988, today internationals comprise nearly one third of all physician attendees at the Annual Meeting, with participants coming from more than 100 nations of the world. In 1997 the Academy membership passed a bylaws amendment that allowed for a new class of membership, the International Affiliate Member. There are almost 4,000 International Affiliate Members today, many of whom attend the Annual Meeting on a regular basis. As international interest and awareness of the AAOS Annual Meeting has grown, so has demand for its educational products and services. Recognizing this trend early, and knowing international markets and customers were "the next new frontier" for AAOS, in 1994 the board of directors recommended and authorized a dedicated international function be established within the organization. A new international committee was created and international staff hired to begin the long-range strategic planning process to grow global relationships and activities. Today, AAOS is involved in global activities at many levels and continues to look for new opportunities to help meet its primary mission of orthopaedic surgeon education and improved musculoskeletal health care for patients worldwide.

As the world's third largest orthopaedic publisher, AAOS benefits from a robust and growing international rights and distribution business managed by International Department staff. AAOS works with independent book distribution agents to have its English language print and electronic education products distributed worldwide and is an active participant in the annual Frankfurt Book Fair held each October in Frankfurt, Germany, AAOS books, journals, and electronic media products are available as translated editions in eight world languages. In 2007, international product sales reached an astounding \$1 million, contributing to 14 percent of total product sales revenue.

Organized through the AAOS international committee and hosting international orthopaedic societies, each year AAOS conducts seven to nine international education programs throughout the world. Participation is by invitation only; AAOS does not conduct independent education programs in any country other than the United States without the express personal invitation of the national or regional orthopaedic society in any country or region. Program proposals are presented to the International Committee for review and approval a minimum of 18–24 months in advance of the planned program. U.S. faculty size can be as small as three or four or as large as twenty. The majority of programs are incorporated into the scientific program of a society's annual scientific congress, though some are delivered as independent, free-standing programs. Cooperative agreements are reached over details of program logistics, faculty travel, and housing and so forth. As appropriate, AAOS staff may accompany faculty and assist with on-site logistics and also work at the AAOS exhibit stand provided by the program host. AAOS staff manage the daily oversight of program development and implementation, working directly with the AAOS course director and faculty and the International Committee member liaison assigned to the program.

In addition to the cooperative education program ventures noted, AAOS also undertakes humanitarian outreach programs and scholarship programs on an annual basis, and this aspect of AAOS global initiatives is expanding. In 2008 AAOS hopes to begin the first of a four-year-long program of Basic and Advanced Orthopaedic Education for the West Africa region. AAOS also remains active in other areas of the world, including Iraq and parts of Latin America.

Inaugurated in 2005, the AAOS Annual Meeting Guest Nation Program was established to foster greater awareness and recognition of the contributions made to the practice of orthopaedics from the many nations of the world, and also enhance the very real and already robust international flavor of the AAOS Annual Meeting. Further, it is intended to raise awareness of the social and cultural richness of the many countries of the world. To date, Spain, Argentina, and Thailand have been honored with Guest Nation status. A number of planned special events are built into the five-day AAOS Annual Meeting.

Communicating with Members

Like most associations, AAOS has devoted much energy and significant resources to communicating with its members. With the Academy, such communication has taken numerous forms. Largely relying on letters from the president in its early years, the Academy's communication program took a step up in 1953 when it began publishing its *Bulletin*. Over the years the *Bulletin* was published according to a number of schedules: intermittently, quarterly, and bimonthly. Subjects covered in the *Bulletin* have included Academy events, personalities, health care policy, and ethics and professionalism. In early 2007, the *Bulletin* was replaced by a tabloid style publication, *AAOS Now*, which began publishing monthly in May. This new

publication has focused on major issues in orthopaedics including scientific developments, professional issues, Academy accomplishments, Academy political activities, and practice management issues. Since 1996, the AAOS has produced a daily newspaper at the Annual Meeting; originally titled *Academy News*, the publications are now the Annual Meeting daily editions of *AAOS Now*.

The AAOS has also dabbled in television. For three years beginning in April 1987, the Academy's weekly half-hour television program "Orthopaedic Surgery Update" appeared on Lifetime Medical Television. Hosted by Clement B. Sledge, the program included guest experts in two or three specialty areas discussing their approaches to musculoskeletal conditions accompanied by videos of procedures shot for this program. As part of LMT's *Physicians' Sunday*, the Academy's program drew the largest percentage of member viewers of any of the *Lifetime Sunday* programs for physicians presented by other societies. In 1993, at its own expense the Academy produced a television show broadcast on in-hotel cable channels during the Annual Meeting in New Orleans. In other years, AAOS has hired outside companies to develop and mount similar programming at the Annual Meeting.

Public and Media Relations

The AAOS has had a public relations program since the mid-1970s. It has grown in scope and complexity during the past 10 years, but prior to its major expansion in 1999 it included brochures and booklets for patients, public service announcements for radio and television, video news releases, and media training for board members and others who might be called upon to represent the Academy in the media. In 1998, a study of consumer perceptions about orthopaedic surgeons revealed the public's mixed attitudes about orthopaedic surgeons: while they respected the physicians for their knowledge and their high tech approaches to musculoskeletal conditions, in general they were less complimentary about the surgeons' abilities to communicate with patients. The study became known around the Academy as the high tech-low touch study—orthopaedic surgeons were ahead of the curve when it came to employing the latest advances in care, but fell behind in terms of relating to their patients. Additional research showed that Fellows believed that a public relations program should position orthopaedists as the best source of musculoskeletal care, differentiate orthopaedic surgeons from their competition, and raise public awareness of treatments and procedures performed by orthopaedic surgeons.

A public relations department was created in July 1999 to implement these activities under the strategic direction set by the Public Relations Task Force and later, the Council on Communications. The council was officially launched following the Academy's 2000 Annual Meeting; its first chair was Dr. Stuart Hirsch. In 2006 the Council on Communications officially became the Communications Cabinet.

The Academy's public relations goals are to enhance the image and credibility of orthopaedics, to promote the role of orthopaedic surgeons as

the primary providers of musculoskeletal care, to establish the AAOS as the premier source of musculoskeletal information, and to demonstrate the difference orthopaedic surgeons make in their patients' quality of life.

The Academy's wide ranging public relations program includes the following:

- Yearly multimedia public service announcements for TV, radio, print, and advertising at airports
- A Community Orthopaedic Awareness Program consisting of PowerPoint presentations for Fellows to use in their communities
- Legacy of Heroes, a film, book, exhibit, and Web site documenting the contributions of orthopaedic surgeons in World War II
- Safe, Accessible Playgrounds. At the Annual Meeting orthopaedic surgeons and exhibitors build a playground in the host city and leave as a legacy a safe and accessible playground where children with and without disabilities can play together
- eMotionPictures: An Exhibition of Orthopaedics in Art, an art exhibition which tells the story of the impact of musculoskeletal conditions on people's lives, through artwork created by artists with orthopaedic conditions and the orthopaedic surgeons who treat them
- Humanitarian Awards, recognizing Fellows of the Academy who have distinguished themselves through outstanding musculoskeletal activities in the United States and abroad
- Patient Safety and Patient-Centered Care programs highlighting and promoting safe, effective, and timely medical care through cooperation among the physician, informed and respected patient, and a coordinated health care team
- Nationwide media relations programs promoting diversity and culturally competent care

In 2003, at the urging of John Tongue and the AAOS Council on Education, the Academy earmarked about \$180,000 to train selected orthopedists in a week-long patient-physician communications education program. This cadre became the nucleus of the Communications Skills Mentoring Program (CSMP), in which these fully trained mentors provide communication skills training to residents in training as well as practicing orthopaedic surgeons. In this program, mentors have given standardized training in proven techniques to more than 4,000 orthopaedic surgeons and residents. In addition, there have been numerous articles in the *Bulletin*, *AAOS Now*, and *JAAOS* on the importance and key skills in communicating effectively with patients. It is expected that the 1998 study will be repeated to help measure the impact of the CSMP training program.

The Academy's Research Activities

The AAOS has never engaged in primary bench research, although it has lobbied for establishing and funding the intramural program in musculoskeletal diseases at the National Institutes of Health. The Academy's research activities have

revolved instead around the incidence, prevalence, and economic impact of musculoskeletal conditions in the United States. Beginning in 1978, the Academy has funded and published a series of monographs that examine the overall impact of musculoskeletal conditions in terms of such measures as economic costs for treatment, loss of productivity by injured workers, days lost from school or work, and other quantifiable benchmarks. The most recent edition of this work, published in 2000, estimated the total economic impact from musculoskeletal diseases and conditions at \$254 billion per year. This work, *Musculoskeletal Conditions in the United States*, was the basis and model of research activities conducted worldwide during the international Bone and Joint Decade, 2000-2010. The latest edition of this work is scheduled for publication in 2008. The Academy also has collected and published statistics on orthopaedic surgeons and orthopaedic procedures, which can be found at its Web site.

The AAOS and Medical Liability Reform

Through a multidisciplinary organization called Doctors for Medical Liability Reform, recent initiatives by the AAOS and other medical specialty societies have attempted to address these issues nationally, but the state societies potentially have a more important role because laws and regulations vary from state to state. In early 2004, the AAOS board of directors adopted tort reform as a major policy initiative, becoming a founding member of Doctors for Medical Liability Reform. In addition, the Academy used much stronger statements in its own official pronouncements on the subject of medical liability reform, for instance: "The AAOS is deeply concerned about skyrocketing medical liability costs and its effect on patient access to care" and claimed that orthopaedists are "moving away, retiring earlier, and limiting services because of the continuous threat of litigation and high insurance premiums." At the federal level, orthopaedic surgeons under the aegis of the AAOS have testified before congressional committees, such as the House Small Business Committee and the Energy and Commerce Committee, regarding the effect of excessive litigation and high insurance rates, citing loss of patient access, the beneficial effect on insurance premiums of reasonable caps on awards for pain and suffering, a General Accounting Office report that confirmed instances of reduction in services, and increased cost for orthopaedic care due to the practice of defensive medicine. The Academy has also issued strong statements on the measures necessary for tort reform such as caps, limitations on attorney fees, and restrictions on the statutes of limitations.

In 2006, these initiatives seemed to have met with some success because the United States House of Representatives voted for responsible tort reform legislation and the president, George W. Bush, said he would sign the bill. The United States Senate, however, failed to pass these measures.

The Academy offers its financial and other support to state societies dealing with the medical liability crisis at the state level but primarily

focuses on legislation on the national level and providing a mechanism to curtail abuses connected with expert witness testimony.

The AAOS Professional Compliance Program

Fellows of the Academy have also complained about unqualified, untruthful, or fraudulent expert witness testimony. The high fees associated with providing expert witness testimony and the chance that an even higher fee might be contingent on the outcome of the case have led some Academy members to engage almost exclusively in this practice, to the consternation of their Academy colleagues.

The leadership of the Academy has dealt aggressively with this issue in response to continuing complaints from the membership. In 2004, it established a Professional Compliance Program that at this writing consists of the following Standards of Professionalism:

- Providing Musculoskeletal Services to Patients
- Orthopaedic Expert Witness Testimony
- Professional Relationships
- Orthopaedists–Industry Conflicts of Interest
- Research and Academic Responsibilities
- Advertising by Orthopaedic Surgeons

In the instance of expert witness testimony, or any of the Standards of Professionalism, a Fellow may file a grievance against another Fellow who is thought to have violated one of the standards, for example, testified fraudulently or inappropriately. After administrative review, the complaint is heard by the Committee on Professionalism. After reviewing the case, the committee can reject the grievant's complaint, or if it decides the complaint has merit, can recommend to the Board of Directors censure, suspension, or expulsion for the Fellow believed to have delivered the fraudulent testimony. The respondent may appeal this decision to a higher level authority, the Judicial Committee, before it goes to the board of directors, which makes the final decision.

The AAOS and Health Policy

The AAOS did not enter health politics in a meaningful way until January 1980. During the presidency of John Gartland of Philadelphia, the board of directors appropriated \$100,000 to establish an office in Washington, D.C. and hired Nicholas Cavarocchi as its official lobbyist. Prior to opening that office, various officers and members (most notably Charles Heck, Phillip Wilson, and William Donaldson) had occasionally traveled to Washington, D.C., to call on members of Congress and other regulators in an effort to influence legislation and the welter of rules and regulations that Congress was enacting.

Three main issues occupied the Washington, D.C., office in its early years. The first was the development in 1986 of a National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS). Gartland,

Heck, and William MacAusland, Jr. testified multiple times before House and Senate committees; eventually, Congressman Claude Pepper and Senators Orrin Hatch and Barry Goldwater introduced legislation that created the national institute directly related to orthopaedics. The Academy, in fact, lobbied three Congresses for an institute to help orthopaedic surgeons obtain research grants before legislation to establish it was passed.

The Academy also worked with multiple issues related to reimbursement for orthopaedic procedures under Medicare and Medicaid. For example, orthopaedic surgeons no longer had any incentive to perform bilateral or other multiple procedures because the Health Care Financing Administration (HCFA), now called Centers for Medicare and Medicaid Services (CMS), refused payment for the second operation. Hospitals could bill successfully under the DRG system (Diagnostic-Related Groups), but physicians often could not. The Academy conducted an analysis of the ways these decisions affected patients and presented it to HCFA to adjust the payments provided for these services, and payments for bilateral or multiple procedures were approved, albeit at a reduced rate.

The Academy also worked to place orthopaedic surgeons on panels of the U.S. Food and Drug Administration (FDA) for the evaluation of new devices and procedures. The success of this effort led the FDA to create an exhibit for the annual meeting of the Academy. The FDA has been continuously involved with the Academy's Annual Meeting. As guests of the AAOS Exhibits Committee, FDA representatives take part in a walk-through of the technical exhibit hall each year on the first morning the exhibits are open. The FDA representatives assist the committee by checking for appropriate signage on the display of devices not approved for use in the United States.

The Academy also lobbied against the practice of health maintenance organizations (HMOs) of limiting patients' access to orthopaedic surgeons. Some HMOs made it difficult for patients to see an orthopaedist by creating incentives that caused primary care physicians to withhold necessary referrals. In 1993, the Academy helped organize the Access to Specialty Care Coalition, which took on the HMO industry and achieved significant concessions in terms of access to specialists. The Academy increased its efforts and expenditures on advocacy programs throughout the mid-1990s, and some members advocated doing significantly more. Constrained by its 501(c)(3) tax status, in terms of what percentage of its revenues could be spent on advocacy, the Academy formed a 501(c)(6) organization in 1997. The American Association of Orthopaedic Surgeons, as a professional trade association, rather than a not-for-profit educational institution, was not limited in what it could spend on advocacy for its members and their patients. The Academy serves the educational and research needs of its members, whereas the Association addresses economic and regulatory components of their practices. The Academy and Association boards of directors comprise the same people, and meetings of the boards are separate but held consecutively; one meeting adjourns and the other is convened.

At the time President Lyndon Johnson pushed the legislation that created Medicare through Congress in 1964, many physicians, including orthopaedic surgeons, had a fee-for-service arrangement with their patients

and insurers. Physicians had the power to set prices for their services at this time, and some feared that the creation of Medicare heralded the beginning of socialized medicine. However, many physicians saw their incomes rise with the advent of Medicare because initially the federal bureaucracy allowed them to establish their own fees, which some critics said was intended to lull physicians into accepting Medicare and the new paradigm. The government's gradualism succeeded in gaining physician acceptance, but regulators soon began to change the fees physicians could expect to receive by citing runaway inflation in health care prices. The federal Medicare program established the Resource-Based Relative Value Scale (RBRVS) approximately 15 years after the enactment of Medicare. William Hsaio, PhD, and others at the Harvard School of Public Health were retained to measure resource inputs for physician services and to establish a relative value for them to begin correcting the perceived shortcomings of the existing system of customary prevailing and reasonable charges. Hsaio and his associates^{1,2} suggested that application of the RBRVS system for paying physicians would eliminate imbalances between payments for physicians performing "invasive procedures" and those providing evaluation and management services. The overall game plan was set: Once the policy makers scaled down what were thought to be excessive payments to providers of invasive procedures, they could focus their attention on measuring quality and cost effectiveness in health services.

The RBRVS study, funded by HCFA, measured the time and intensity of the service, cost to the physicians who provided it, and the costs of specialty training (actual expense and income lost by the physician during training). Using this information, it devised a monetary conversion factor (dollars per unit) to determine the "reasonableness" of charges for services in all medical specialties. The Hsaio study also compared the American physicians' fees to those of Canadian physicians; as expected, it was found that Americans charged a lot more for their services. This finding, however, bolstered the main point of the Hsaio study—that American surgeons got more money for their operations than they were worth, and that many of the procedures were "overvalued." HCFA used this study to establish rates of remuneration for services, and established tight, almost draconian controls over how physicians could behave in relationship to these payments. It adopted a take-it-or-leave-it stance with regard to physician participation. Physicians, including orthopaedic surgeons, could refuse to accept the lower rates, but if they did HCFA excluded them completely from participation in the Medicare program. Because HCFA covered all individuals over 65 years of age, for most physicians, nonparticipation would have meant a severe cut in income.³⁻⁵ Medicaid programs operated by the various states and private insurers have taken their cue from the Medicare rate schedules and generally have modified their fees downward for all physicians, including orthopaedic surgeons.

The Academy and the Future of Orthopaedics: Getting It Straight

American orthopaedics has reached maturity as a medical-surgical specialty and the AAOS is the organization that best represents it (Figure 57). Nevertheless, several issues now confront orthopaedists and the Academy and could cloud the future of the discipline. Orthopaedics could fragment irreversibly into its multiple subspecialties if its practitioners decide that their focused interests take precedence over the broader specialty of musculoskeletal health care.

Orthopaedic surgeons have more control over fragmentation than they do over the decline in Medicare payments. The mandated annual cuts in Medicare payments combined with rising expenses (particularly medical liability insurance and legal fees) are having a negative financial impact on many orthopaedists. Physicians in general and orthopaedic surgeons in particular increasingly find themselves in the position of making less for working more. On the other hand, orthopaedic surgery has provided its practitioners with incomparable career satisfaction. The hands-on experience of curing patients of musculoskeletal disorders, relieving debilitating pain with joint arthroplasty, or reconstructing trauma victims is unique to orthopaedic surgery. The keen sense of fulfillment orthopaedic surgery provides can come only to physicians who have disciplined themselves to learn its many detailed and difficult techniques. It is a true calling, one which inspires many orthopaedic surgeons to immerse themselves in lifelong learning despite all the obstacles and setbacks. Furthermore, as the science of orthopaedics advances, more reliable ways to achieve relief of suffering will be discovered by tenacious researchers. Basic scientists, and not orthopaedic surgeons, may well provide the necessary breakthroughs, but an alert clinician and a practicing orthopaedic surgeon will have to make the necessary connections, much the same way Joseph Lister saw the utility in Louis Pasteur's research.

Finally, the need for orthopaedic surgery is perpetual. The malaligned human frame will always need to be straightened, the lame will want to walk, and the broken will need to be mended. Doctors with skill and determination to take on the treatment of tumors, infections, traumatic injuries, and deformities must be available to the people who need them. The community of orthopaedic surgeons in America and the members of the AAOS comprise a fellowship of men and women who collectively are a unique national resource that must be nurtured and preserved. They have the obligation to educate their fellow citizens and representatives regarding the importance of orthopaedic surgeons' accomplishments and how much more they could achieve. Every day, all over the United States, thousands of orthopaedists provide life-enhancing and even life-saving care. The preservation and continuation of this essential service will require orthopaedic surgeons to maintain their optimism and confidence in themselves and in their profession. Their history demands it of them.

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