Greetings from Scottsdale, Arizona. I hope this fall season finds everyone healthy and happy and all had a restful summer, with time for vacation and holiday.

The Board of Director’s met for the summer board meeting on July 20-21, 2007, at the Silverado Resort in Napa, CA. We had a successful meeting with approximately 8-9 hours of meeting time covering many items on the board agenda.

My duty, I feel, in this newsletter, is to update the members on actions the board has taken this summer, so you may be fully informed for the annual business meeting in Los Angeles.

The secretary’s report under the guidance of Dr. Brandt, conferred retired membership on six candidates. Two of these members, James Hoehn and Robert Love, past presidents, were conferred emeritus status by the board. Two active members have resigned.

The membership committee chair, Dr. McCabe, presented eight active member applicants approved for membership, five candidate member applicants approved for membership and two affiliate member applicants approved for new membership.

The board had a long discussion with regards to recruiting new members for the Association, which is very important for us. The group has generated a number of recruitment ideas, which Dr. McCabe will be acting upon, to solicit program directors and hand surgery fellowships to get a list of all program participants. A board representative will make a presentation at the senior resident’s conferences. Our journal Hand Surgery will be distributed to all hand fellows free of charge.

The board has also agreed that each one of us sitting on the board will contact five people who are not members and invite them to join the Association and to attend our annual meeting this year in Los Angeles. I urge all members, active, candidate and affiliate, to do the same. The board then agreed to reduce the annual meeting registration fee for all residents and fellows to $150. This motion was carried unanimously and should help defray some of the costs for program directors to send their residents and fellows to our meeting.

The board and membership committee also discussed the continued on page 3
Seasons

When I was a teenager one of the more popular tunes was one sung by the Byrds called Turn! Turn!

Turn! Antiwar activist Pete Seeger had basically taken the first eight verses of Ecclesiastes, and, after the last one, “A time to love, and a time to hate; a time of war, and a time of peace” added simply “I swear it’s not too late” as the only non-Biblical words in the song. It was a powerful message about Vietnam in that day and time, but of course the message of Ecclesiastes has been with us, and comforting us, for several millennia before that.

I was reminded of this tune recently, and its opening lines, “To every thing there is a season, and a time to every purpose under the heaven. A time to be born, and a time to die” on the occasion of the death of a friend, Lee Gordon. Lee was a hand surgeon in Fort Collins, Colorado. He had a passion for life, and for people. He was forever challenging himself to do more, both physically and morally. Run up Pike’s Peak, raft the Grand Canyon, climb Kilimanjaro- these were just some of the challenges he created for himself, and conquered. But the greatest challenge he gave himself was to be of service to others.

Of course, as physicians, we all do that. But just as Kilimanjaro takes your everyday hike to another level, so did Lee take service to a higher plane. His passion was providing service where it did not exist. Like Uganda, after Idi Amin left the country in a shambles. Or Central America, Nepal, or Peru, where he served on medical missions. Or, closer to home, on Indian reservations in the US. When care was too complicated to provide there, he figured out a way to get the patients back to Fort Collins, even if it meant boarding them and their families in his own home for as long as it took to complete the reconstruction.

Lee’s mentor was Richard Smith. Smith was the hand surgery superstar of the late 70’s and early 80’s, influencing such innovative hand surgeons as Peter Stern, Leonard Gordon, and Jesse Jupiter. Tragically, Smith’s life was cut short by a glioblastoma at the age of 57. Ironically, Lee Gordon would receive the same fatal diagnosis at almost the same age.

In typical fashion, Lee continued to enjoy life in the time that was left to him. In June, after a year of radiation and chemotherapy, and feeling well, he rafted the Grand Canyon with his wife, Rita. Returning from the trip he was happy, but fatigued. Ultimately, pneumonia set in and, in his immunosuppressed state, he was unable to resist. He made the courageous decision to accept death as he had embraced life, stopped his treatment, and entered a hospice, where he passed away, surrounded by family and friends.

Lee lived all the seasons of life, and loved them all. He reminded me, and I hope he reminds you, that these seasons should, and do, have a purpose. Most important, he recognized that those purposes are highest when they revolve around people, not things.

As the seasons turn in my own life, I ask myself: am I embracing the ones I love? Am I reaching out to help those in need? Am I doing, not enough, but as much as I can?

I know that I do not do enough. But as the seasons change there is the hope to do more.

Lee found great rewards in working through Health Volunteers Overseas (www.hvousa.com). Perhaps some of us can find rewards there as well. Or in other works, that put those in need most directly in our sights. Grasp the season. While there is time.

FROM THE EDITOR’S DESK

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Hand Surgery Quarterly is a publication of The American Association for Hand Surgery and is published strictly for the members of AAHS. This publication is designed as a forum for open discussion and debate among the AAHS membership. Opinions discussed are those of the authors or speakers and are not necessarily the position, posture or stance of the Association.

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declining affiliate membership retention problems. We have agreed to distribute membership applications for the hand association on specialty day at the annual meeting and we will place an advertisement in the American Society Hand Therapy newsletter and similar publications.

The education committee has been very active under a very ambitious chairman, Dr. Jai Ryu. Dr. Ryu presented a possibility of their committee producing an AAHS handbook that could be distributed to non-hand surgeons and primary care surgeons. After a lengthy discussion, the board felt there was not enough information to proceed

Outreach Opportunity

The Hand Surgery Endowment (HSE) is pleased to announce an on-going volunteer opportunity with the USPHS/Indian Health Service on the Navajo Indian Reservation in Chinle, AZ. Volunteer hand surgeons would provide direct patient care (evaluation and treatment including surgery) for hand injuries and conditions.

Chinle Arizona is located in the heart of the Navajo Indian Reservation and is the home to the beautiful Canyon De Chelly. The scenery surrounding Chinle is a spectacular display of red rock formations, mesas, mountain valleys and canyons. There are many places for adventure and exploration in Chinle and the surrounding four corners area. Chinle Comprehensive Health Care Facility (CCHCF) is 60 bed hospital which serves approximately 35,000 Navajos in an area of 3600 square miles, providing a wide range of inpatient and outpatient services.

CCHCF’s “Hand Clinic” has been running for 13 years thanks to the generosity of volunteer hand surgeons and the Chinle staff that coordinate the services! Hand Clinic is held approximately every 3-4 weeks and is 2.5 - 3 days long with the schedule being split between clinical and surgical time. Pre-operative and post-operative care is provided on-site by primary care providers and therapists, including a CHT. Volunteer hand surgeons are needed on an on-going basis to provide medical & surgical care at Hand Clinics and must complete medical staff credentialing and privileging at CCHCF (initiated at least 1-2 months prior to clinic dates).

Please note that as a volunteer consultant he/she is covered under the federal Tort Claims Act, 28 U.S.C. Section 1346 (b), 2671 et-seg, and is immune from personal liability for damages resulting from any negligent or wrongful act of omission while acting within the scope of his/her assignments. CCHCF would arrange/book and pay for volunteer surgeon flight travel to/from Albuquerque or Phoenix airports, in addition to reimbursement for hotel, rental car, and a per diem for the days associated with the Hand Clinic.

An additional volunteer site is also in the works for Santa Fe, NM, whose patient population consists of the Pueblos of San Felipe, Santa Domingo, Nambe, Pojoaque, Santa Clara, San Idefonso, and Okhay Owingay (San Juan).

For more information on Chinle’s Hand Clinic and/or the upcoming opportunity in Santa Fe, please contact:

LCDR Andra Battocchio PT, CHT
Director of Rehabilitation Services
Hand Clinic Coordinator
928-674-7225
andra.battocchio@ihs.gov

annual AMA membership five year review this year and 30% of our members must be AMA members. Therefore, the board is asking all of you to join the AMA in January of this year, so we can maintain our seat in the House of Delegates. The Treasurer’s report was given by Dr. Rick Brown. The Finance Committee met for several hours going through line item assessment of all expenditures. The most important consideration the board passed is that starting in January 2008, the Hand Surgery Quarterly will now be placed on the website and sent via email, rather than by postage. This will save the association approximately $25,000 - $30,000 per year. The newsletter will be a downloadable hard copy and if the central office does not
have your email address, it is of the utmost importance you contact handsurgery.org and supply your email address. The operating budget was then approved for the 2008 year.

Site Selection Committee Report; there was a suggestion of having the 2013 meeting at Monte Carlo. We felt because of the distance for that meeting, it would probably affect affiliate members attending the meeting and also affect the ability of our exhibitors to get their booths set up, therefore, the 2013 was unanimously carried to be held at the Naples Grand Resort in Naples, Florida. We asked the trip committee to look into booking Hawaii for the 2014 annual meeting.

Dr. Warren Schubert presented the proposed bylaws changes. These are minimal and mostly of language changes only. They will be presented to the members for voting at the annual meeting in Los Angeles.

Lastly, under new business, we discussed the current status of the journal Hand. It is coming along very nicely. Dr. Zook reported to me this spring that he presently has 60 articles reviewed and ready for publication, although he stated he needs more articles being submitted by our membership and for non-membership alike. After two years our journal will be up for review. Hopefully at that point in time we will be a fully accredited journal. We had a telephone conference with Springer, our publishers, and asked them to try and get advertisement for the journal, so that some of the costs can be defrayed with the association over time and hopefully, eventually, it will be a cost neutral operation for the organization.

We are all excited about the journal. I’m sure you can agree with me that the recent articles have been informative and educational. We are indebted to Dr. Zook and his editorial staff for the hard work they have put forth and I ask you to continue to support the journal by submitting papers. If you know some of our commercial exhibitors, ask them to place an ad.

The program is set in place and the Program Committee will be reporting to you on this. I am very grateful to Dr. Mike Neumeister, Dr. Craig Johnson and Christine Novak, PT for their excellent work. We will start on Wednesday with Specialty Day. It will be a full day for our hand therapists and our active members, with a full review of arthritis including medical treatment, pathophysiology, new joint replacements and therapy procedures for the patient inflicted with upper extremity arthritis. We have also passed a resolution to allow one day attendance for our therapists for $200. This includes the full day of the meeting on Wednesday, a cocktail reception for all the hand therapists with the board in the Presidential suite and the opening reception on Wednesday night. We hope that this will help local therapists from California, Nevada and the Arizona region to attend the meeting for one day, if they have trouble getting away from work for the whole meeting.

I hope you are all excited about coming to Los Angeles. It looks like hotel rooms are booking quickly, therefore I urge you, as soon as the program is out, to get your registration in. This can be done online, as well as your hotel reservation. Thursday, Friday and Saturday morning we will have a full schedule. However, there will be time in the afternoon to enjoy the sites and amusements of the L.A. area. We will have several instructional courses, many of which are new. Randi Bindra has offered to get his team together and give the board review course on Friday afternoon. Ramez Naam is going to speak to us on embracing the promise of biological enhancement. His work is incredible. I have seen him on the 21st Century on Public TV and I have read his best selling book. He will give an intriguing and unbelievable talk on genetic engineering, computer and biological enhancement of the human body, state-of-the-art. He is a futurist, an excellent speaker and I’ve asked him to bring some of his books along so you can purchase a book and he will sign it for you after his lecture.

Dr. Allen Van Beek, who has been a friend and mentor through my whole career, has agreed to give the Danyo lecture, and all of you know Allen will give a multimedia presentation that will be inspiring to all of us. I am grateful and honored that he has agreed to do this for me.

In closing, I want to thank all of our commercial exhibitors for signing up for booths for our meeting. We greatly appreciate their support and we hope all of our members support them in the exhibits area. A special thank you to the Stryker Corporation, Small Bone Innovations and Ascension Orthopedics, for their generous gifts to help support some of our social and educational endeavors. Their generosity is appreciated by myself, the entire board and the entire Association.
Philadelphia 2008
Hand Rehabilitation Foundation Presents

Surgery and Rehabilitation of the Hand: With Emphasis on the Elbow

Honored Senior Professors
Anne D. Callahan, OTR/L, CHT
Karen M. Pettengill, MS, OTR/L, CHT
Kevin E. Wilk, PT
James R. Andrews, MD
Michael R. Hausman, MD
Mr. David Stanley, MB, BSc, FRCS (Orth)
Scott P. Steinmann, MD

March 15 - 18, 2008

Chairpersons
Terri M. Skirven, OTR/L, CHT
Susan M. Blackmore, MS, OTR/L, CHT
Jane M. Fedorczyk, MS, PTA, CHT, ATC
A. Lee Osterman, MD

(25 Contact Hours) • For more information please call 215.925.4579 or visit our website at:

www.handfoundation.org
Burns and Mutilating Hand Injuries

The topic for this issue of the Coding Corner is burns and mutilating hand injuries, and we will look at procedures commonly performed for these problems.

The code families that are relevant to this topic can be organized into four basic groups: adjacent tissue transfer or rearrangement, free skin grafts, skin and deep tissue flaps, and miscellaneous flaps or grafts.

### Adjacent Tissue Transfer or Rearrangement

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>14000</td>
<td>Adjacent tissue transfer or rearrangement, trunk; defect 10 sq. cm. or less</td>
</tr>
<tr>
<td>14001</td>
<td>Adjacent tissue transfer or rearrangement, trunk; defect 10.1 sq. cm. to 30.0 sq. cm.</td>
</tr>
<tr>
<td>14020</td>
<td>Adjacent tissue transfer or rearrangement, scalp; defect 10 sq. cm. or less</td>
</tr>
<tr>
<td>14021</td>
<td>Adjacent tissue transfer or rearrangement, scalp; defect 10.1 sq. cm. to 30.0 sq. cm.</td>
</tr>
<tr>
<td>14040</td>
<td>Adjacent tissue transfer or rearrangement, forehead, cheeks, chin, mouth, neck, axilla, genitalia, hands, and/or feet; defect 10 sq. cm. or less</td>
</tr>
<tr>
<td>14041</td>
<td>Adjacent tissue transfer or rearrangement, forehead, cheeks, chin, mouth, neck, axilla, genitalia, hands, and/or feet; defect 10.1 sq. cm. to 30.0 sq. cm.</td>
</tr>
<tr>
<td>14060</td>
<td>Adjacent tissue transfer or rearrangement, eyelids, nose, ears, and/or lips; defect 10 sq. cm. or less</td>
</tr>
<tr>
<td>14061</td>
<td>Adjacent tissue transfer or rearrangement, eyelids, nose, ears, and/or lips; defect 10.1 sq. cm. to 30.0 sq. cm.</td>
</tr>
<tr>
<td>14300</td>
<td>Adjacent tissue transfer or rearrangement, more than 30 sq. cm., unusual or complicated, any area</td>
</tr>
<tr>
<td>14350</td>
<td>Filleted finger or toe flap, including preparation of recipient site</td>
</tr>
</tbody>
</table>

### Free Skin Grafts

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>15000</td>
<td>Surgical preparation or creation of recipient site by excision of open wounds, burns eschar, or scar (including subcutaneous tissues); first 100 sq. cm. or one percent of body area of infants and children</td>
</tr>
<tr>
<td>15001</td>
<td>Surgical preparation or creation of recipient site by excision of open wounds, burns eschar, or scar (including subcutaneous tissues); each additional 100 sq. cm. or each additional one percent of body area of infants or children</td>
</tr>
<tr>
<td>15050</td>
<td>Pinch graft, single or multiple, to cover small ulcer, tip of digit, or other minimal open area (except on face), up to defect size 2 cm. diameter</td>
</tr>
<tr>
<td>15100</td>
<td>Split graft, trunk, arms, legs; first 100 sq. cm. or less, or one percent of body area of infants or children</td>
</tr>
<tr>
<td>15101</td>
<td>Split graft, trunk, arms, legs; each additional 100 sq. cm. or each additional one percent of body area of infants or children, or part thereof</td>
</tr>
<tr>
<td>15120</td>
<td>Split graft, face, scalp, eyelids, mouth, neck, ears, orbits, genitalia, hands, feet and/or multiple digits; first 100 sq. cm. or less, or one percent of body area of infants and children</td>
</tr>
<tr>
<td>15121</td>
<td>Split graft, face, scalp, eyelids, mouth, neck, ears, orbits, genitalia, hands, feet and/or multiple digits; each additional 100 sq. cm. or each additional one percent of body area of infants or children, or part thereof</td>
</tr>
<tr>
<td>15200</td>
<td>Full thickness graft, free, including direct closure of donor site, trunk; 20 sq. cm. or less</td>
</tr>
<tr>
<td>15201</td>
<td>Full thickness graft, free, including direct closure of donor site, trunk; each additional 20 sq. cm.</td>
</tr>
<tr>
<td>15220</td>
<td>Full thickness graft, free, including direct closure of donor site, scalp, arm, and/or legs; 20 sq. cm. or less</td>
</tr>
<tr>
<td>15221</td>
<td>Full thickness graft, free, including direct closure of donor site, scalp, arm, and/or legs; each additional 20 sq. cm.</td>
</tr>
<tr>
<td>15240</td>
<td>Full thickness graft, free, including direct closure of donor site, forehead, cheeks, chin, mouth, neck, axilla, genitalia, hands, and/or feet; 20 sq. cm. or less</td>
</tr>
<tr>
<td>15241</td>
<td>Full thickness graft, free, including direct closure of donor site, forehead, cheeks, chin, mouth, neck, axilla, genitalia, hands, and/or feet; each additional 20 sq. cm.</td>
</tr>
<tr>
<td>15260</td>
<td>Full thickness graft, free, including direct closure of donor site, nose, ears, eyelids, and/or lips; 20 sq. cm. or less</td>
</tr>
<tr>
<td>15261</td>
<td>Full thickness graft, free, including direct closure of donor site, nose, ears, eyelids, and/or lips; each additional 20 sq. cm.</td>
</tr>
<tr>
<td>15342</td>
<td>Application of bilaminate skin substitute/neodermis; 25 sq. cm.</td>
</tr>
<tr>
<td>15343</td>
<td>Application of bilaminate skin substitute/neodermis; each additional 25 sq. cm.</td>
</tr>
<tr>
<td>15350</td>
<td>Application of allograft skin; 100 sq. cm. or less</td>
</tr>
<tr>
<td>15351</td>
<td>Application of allograft skin; each additional 100 sq. cm.</td>
</tr>
<tr>
<td>15400</td>
<td>Application of xenograft, skin; 100 sq. cm. or less</td>
</tr>
<tr>
<td>15401</td>
<td>Application of xenograft, skin; each additional 100 sq. cm.</td>
</tr>
</tbody>
</table>
These four categories represent a total of 53 different codes, all of which are displayed in the tables below.

For adjacent tissue transfer, a key distinguishing feature of the code set is whether the defect being covered is greater or less than 30 square centimeters in area. The other element of the code descriptor relates to the area of the body being addressed. The four separate areas are: a) the trunk b) the scalp, arms, or legs, c) the forehead, cheeks, chin, mouth, neck, axillae, genitalia, hands, or feet, and d) the eyelids, nose, ears, or lips.

For the code group relating to free skin grafts, discriminating features between different codes relates to whether the grafted area is greater or less than 100 square centimeters, and in general, the location of the grafted area (using the same basic area descriptions as noted for adjacent tissue transfer). Different code groups are also used to distinguish between site preparation, pinch grafts, split grafts, full thickness grafts, and use of skin substitutes.

For skin and deep tissue flaps, different codes are used to identify use of direct or tubed pedicles and muscle flaps. The same geographic descriptors for different graft target locations are used as noted above. Separate codes also exist for sectioning flaps and transferring flaps.

For the category of miscellaneous flaps or grafts, island pedicle flaps have their own code. The next group of codes in this family describe flaps with microvascular anastomoses based upon their tissue composition: free muscle, free skin, or free fascial. The last four codes in this family address composite grafts, derma-fat-fascial grafts, and punch grafts for hair transplants.

The entire set of 53 codes is summarized in the tables on these pages.
Specialty Day 2008: Arthritis

Specialty Day was conceptualized as an opportunity to facilitate the inclusive nature of the association; pairing surgical talks with therapeutic intervention strategies. Commensurate with these goals, Craig Johnson, MD and Christine Novak, PT, MS have planned a comprehensive program focusing on the management of arthritis. Highlights include lectures on arthroplasties, tendon reconstruction, and Raynaud’s phenomenon. Three interactive panels will conclude the morning session: wrist reconstruction, thumb arthritis, and a Hollywood ending entitled “When Bad Things Happen to Good People”.

Instructional courses focusing on distal radius fractures, the distal radioulnar joint, and tendon injuries will be offered during the afternoon session, which will end with a splinting workshop open to therapists and surgeons alike. Progressive splinting concepts for flexor and extensor tendon injuries and phalangeal fractures will be demonstrated.

As a means to welcome local therapists, the Board of Directors has agreed to offer a one-day registration to therapists who are interested in attending specialty day. In addition, Dr. Bradley Meland, AAHS President, has graciously offered to host a therapists’ reception for specialty day attendees following the splinting workshop. One day registrants also have the option to attend the welcome reception for an additional fee.

On behalf of the affiliate directors, I invite you to join us for this exciting specialty day program and look forward to seeing you in Beverly Hills!

Jeff Cowdry, OT, CHT

Personal: I was born in St. Louis, Missouri. I married my high school (Kirkwood) sweetheart after I graduated from college. Kathy and I have two fine sons, one a Mizzou grad and the other has one year of college under his belt. I enjoy camping with my sons, teaching, photography and making media presentations. My wife and I enjoy traveling together to different teaching and business destinations. I am the current advocacy director with ASHT and also have the privilege of serving on the NBAOS (National Board of Accreditation for Orthotic Suppliers) board.

Education: I graduated from the University of Missouri at Columbia with a BS in Occupational Therapy. One educational highlight was working as a gross anatomy teaching assistant for the OT/PT class of 1980. I still take every opportunity to go to anatomy labs to review the wonders of anatomy. My first job was at the Jewish Hospital of St. Louis where I worked with tendon transfers on quadriplegics, elbow contractures on head injuries, scar contractures on burn patients, etc. I started a one-person hand program at Jewish Hospital under the mentorship of a plastic surgeon, David Caplin. From 1982 until present, he and many of the best hand surgeons in the country have taught me incredible things about hand surgery and hand therapy.

Employer: I work at Advanced Training and Rehab, a physical therapy private practice that includes three hand therapy locations. We enjoy helping people recover from tendon, nerve, and orthopedic injuries.

AAHS Involvement: New member.

Best Part of My Job: Being able to shadow and observe top docs; having a fun work environment; helping a wide variety of patients.

Major Accomplishments: I am happy to have served in a teaching capacity for 15 years with a national healthcare company. I am proud to serve on the ASHT and NBAOS boards. I am very pleased to meet, shadow and videotape top doctors in St. Louis. I would like to find the time to interview doctors in all parts of the country and create a library of pearls for young therapists. Someday I hope to contribute research papers to our field.

Clinical Specialties: I enjoy treating hand trauma and facilitating wound healing. I am interested in evaluating and treating wrist injuries. I am improving my skills treating the elbow, and always researching better ways to treat lateral elbow pain.

Greatest Patient Challenge: Electrical burn patient with right above elbow amputation and left hand finger amputations. Complete multiple flexor tendon with median nerve lacerations in both zones 2 and 5. Any challenging patient whose doctor does not instill high value and high confidence in hand therapy.

Three Words That Describe Me: Curious, creative, and scientific.
AAHS Mentoring Program Volunteers

Below is a list of AAHS members who have generously offered to teach their expertise in specific areas, letting our members continue to learn the way we were taught, as residents and fellows, in the clinic and operating room with a surgical mentor. For more information, please contact the AAHS Central Office.

### AAHS Mentoring Program Volunteers

<table>
<thead>
<tr>
<th>NAME</th>
<th>EMAIL</th>
<th>PROCEDURE(S)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R. D. Beckenbaugh, MD</td>
<td><a href="mailto:beckenbaugh.robert@mayo.edu">beckenbaugh.robert@mayo.edu</a></td>
<td>Technique of pyrocarbon arthroplasty of the thumb carpometacarpal; and metacarpophalangeal and PIP joints of the digits</td>
</tr>
<tr>
<td>Richard Berger, MD, PhD</td>
<td><a href="mailto:berger.richard@mayo.edu">berger.richard@mayo.edu</a></td>
<td>Wrist surgery</td>
</tr>
<tr>
<td>Kyle Bickel, MD</td>
<td><a href="mailto:kbickel@shand.com">kbickel@shand.com</a></td>
<td>Vascularized bone graft reconstruction for carpal pathology; complex fracture management in the hand and wrist; and arthroscopic wrist ganlion excision</td>
</tr>
<tr>
<td>Allen Bishop, MD</td>
<td><a href="mailto:bishop.allen@mayo.edu">bishop.allen@mayo.edu</a></td>
<td>Brachial plexus reconstruction; carpal vascularized bone grafts; and microvascular free tissue transfers</td>
</tr>
<tr>
<td>James Chang, MD</td>
<td><a href="mailto:changhand@aol.com">changhand@aol.com</a></td>
<td>Dupuytren's Contracture; thumb reconstruction; flexor tendon surgery; trapezial excision arthroplasty; and medial epicondylectomy</td>
</tr>
<tr>
<td>Kevin Chung, MD</td>
<td><a href="mailto:kecchung@med.umich.edu">kecchung@med.umich.edu</a></td>
<td>Rheumatoid and congenital</td>
</tr>
<tr>
<td>E. Gene Deune, MD</td>
<td><a href="mailto:egdeune@jhmi.edu">egdeune@jhmi.edu</a></td>
<td>Congenital hand anomalies; upper and lower extremity reconstruction for deficits due to trauma; cancer resecation; and neurological disorders (i.e. brachial plexus)</td>
</tr>
<tr>
<td>Scott H. Kozin, MD</td>
<td><a href="mailto:SKOZIN@shrinenet.org">SKOZIN@shrinenet.org</a></td>
<td>Pediatrics</td>
</tr>
<tr>
<td>Don Lalonde, MD</td>
<td><a href="mailto:drdonlalonde@nb.aibn.com">drdonlalonde@nb.aibn.com</a></td>
<td>Wide awake approach to hand surgery</td>
</tr>
<tr>
<td>W. P. Andrew Lee, MD</td>
<td><a href="mailto:leewp@upmc.edu">leewp@upmc.edu</a></td>
<td>Post traumatic hand reconstruction; mini incision carpal tunnel release</td>
</tr>
<tr>
<td>Susan Mackinnon, MD</td>
<td><a href="mailto:mackinnons@wustl.edu">mackinnons@wustl.edu</a></td>
<td>Ulnar nerve surgery</td>
</tr>
<tr>
<td>Nash Naam, MD</td>
<td><a href="mailto:dnaam@handdocs.com">dnaam@handdocs.com</a></td>
<td>SLAC wrist reconstruction; vascularized bone graft in treating scaphoid nonunions; ulnar shortening &amp; radial shortening; PIP &amp; MP joint arthroplasty; LRTI; arthroscopy of the CMC joint of the thumb</td>
</tr>
<tr>
<td>Daniel J. Nagle, MD</td>
<td><a href="mailto:OOGIEN@aol.com">OOGIEN@aol.com</a></td>
<td>Wrist arthroscopy; endoscopic carpal tunnel release</td>
</tr>
<tr>
<td>Michael Neumeister, MD</td>
<td><a href="mailto:mneumeister@siumed.edu">mneumeister@siumed.edu</a></td>
<td>Basilar joint arthroplasty; peripheral nerve decompression</td>
</tr>
<tr>
<td>Jorge Orbay, MD</td>
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<td>Wrist fractures</td>
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<td>A. Lee Osterman, MD</td>
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<td>Advanced wrist arthroscopy and small joint arthroscopy. Can also mentor a topic such as DRUJ problems, or wrist fracture.</td>
</tr>
<tr>
<td>Julian J. Pribaz, MD</td>
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<td>Soft tissue reconstruction; microsurgical reconstruction; spare parts surgery and extremity reconstruction</td>
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<td>Michael Raab, MD</td>
<td><a href="mailto:mikeraab1@earthlink.net">mikeraab1@earthlink.net</a></td>
<td>Corrective osteotomy (volar or dorsal) of distal radius malunion with iliac crest bone grafting</td>
</tr>
<tr>
<td>Jaiyoung Ryu</td>
<td><a href="mailto:jryu@adelphia.net">jryu@adelphia.net</a></td>
<td>Wrist reconstruction; distal radius fracture; and scaphoid fracture/nonunion</td>
</tr>
<tr>
<td>David Slutsky, MD</td>
<td><a href="mailto:d-slutsky@msn.com">d-slutsky@msn.com</a></td>
<td>Use of volar wrist portals for wrist arthroscopy and arthroscopic repair of dorsal radiocarpal ligament tears; nonbridging external fixation of intra-articular distal radius fractures; nerve conduction studies for hand surgeons; and comparison of NCS and PSSD for the diagnosis of CTS</td>
</tr>
<tr>
<td>William Swartz, MD</td>
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<td>Tendon transfer and ulnar nerve</td>
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<tr>
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<td><a href="mailto:ezook@siumed.edu">ezook@siumed.edu</a></td>
<td>Fingertip reconstruction</td>
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</tbody>
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AAHS 38th Annual Meeting
Program at a Glance
January 9–12, 2008
Hyatt Regency Century Plaza Hotel and Spa, Beverly Hills, CA

AAHS
Tuesday, January 8, 2008
2:00–5:00pm AAHS Board of Directors Meeting

AAHS
Wednesday, January 9, 2008
6:30–7:30am Continental Breakfast
7:00–7:15am President/Program Chair Welcome
N. Bradley Meland, MD, President
Michael Neumeister, MD, Program Chair
Craig Johnson, MD, Program Chair
Christine Novak, PT, MS, Program Chair
7:15–9:05am Medical/Surgical Management
Craig Johnson, MD, Moderator
7:15–7:40am Pathogenesis & Medical Management
Steven Ytterberg, MD
7:40–8:20am DIP/PIP
7:40am DIP Arthroplasty
Robert Beckenbaugh, MD
8:05am Post Op Management Following DIP Arthroplasty
Ann Lund, OTR, CHT
8:20–8:55am MP
8:20am MP Arthroplasty
Steve Moran, MD
8:40am Post Op Management Following MP Arthroplasty
Paul Brach, MS, PT, CHT
8:55am Discussion & Questions
9:05am BREAK
9:25–10:45am Soft Tissue Reconstruction
Christine Novak, PT, Moderator
9:25am Tendon Reconstruction
James Chang, MD
9:45am Post Op Management Following Tendon Reconstruction
Rebecca von der Heyde, MS, OTR/L, CHT
10:00am Surgical Management of Raynaud’s Phenomenon
Michael Neumeister, MD
10:20am Post Op Management
Julianne Howell, PT, MS, CHT
10:35am Discussion and Questions
10:45am PANEL: Wrist Reconstruction
Mark Baratz, MD, Moderator
Brian Adams, MD
A. Bobby Chhabra, MD
Bill Cooney, MD
11:30am–12:30pm Past President’s Lunch
11:40am PANEL: Thumb Arthritis: Challenges & Management
Peter Murray, MD, Moderator
James Chang, MD
Matthew Tomaino, MD
Thomas Trumble, MD
12:35pm LUNCH

12:55pm PANEL: When Bad Things Happen to Good People
Nicholas Volder, MD, Moderator
Peter Amadio, MD
Daniel Nagle, MD
A. Lee Osterman, MD
William Swartz, MD
2:30–3:30pm Hand Surgery Endowment Board of Governors Meeting
2:00–3:00pm Instructional Courses
101 Distal Radius Fracture
Brian Adams, MD, Moderator
William Geissler, MD
Ronald Palmer, MD
Ann Kammien, PT, CHT
102 DRUJ
Mark Baratz, MD, Moderator
Daniel Nagle, MD
Maureen Hardy, PT, MS, CHT
103 Flexor Tendon Repair
Michael Neumeister, MD, Moderator
Peter Amadio, MD
Donald Lalonde, MD
Avisu Wolff, BSc, OTR/L, CHT
104 Extensor Tendon Injuries
Wyndell Merritt, PT, MS, CHT
12:55–4:00pm Instructional Course
105 An Algorithmic Approach to Treatment of CMC-I Arthritis
Sponsored by: Small Bone Innovations
Alejandro Badia, MD
Randip Singh Bindra, MD
Tyson Cobb, MD
A. Lee Osterman, MD
3:00–4:30pm Instructional Courses
106 Splinting Challenges—Practical Pearls
Julianne Howell, PT, MS, CHT, Moderator
James Goyviri, PT, CHT
Rebecca von der Heyde, MS, OTR/L, CHT
5:00–6:00pm Therapists’ Reception
6:00–8:00pm Welcome Reception
AAHS
Thursday, January 10, 2008
6:30–8:00am Continental Breakfast with Exhibitors
7:00–8:00am Instructional Courses
107 Fractures of the Hand
Donald Lalonde, MD
Stephen Trigg, MD
Mary Burns, OT
108 PIP Joint Stiffness
Robert Beekenbaugh, MD, Moderator
Joseph Slade, MD
Rebecca von der Heyde, MS, OTR/L, CHT
109 Vascularized Bone Grafts
Steven Moran, MD
Michael Saurbier, MD
110 Scapho-Lunate Injuries
Randipsingh Bindra, MD, Moderator
Michael Hayton, MD
Jai Rya, MD
111 Cost Effective and Tax Efficient Managed Money for Physicians
Patrick Donnelly, Smith Barney Consulting Group
Jeff Palmer, Smith Barney Consulting Group
8:10–8:45am Welcome
N. Bradly Meland, MD, President
Michael Neumeister, MD, Program Chair
Craig Johnson, MD, Program Chair
Christine Novak, PT, MS, Program Chair
Steven Glickel, MD, ASSH President
Richard D’Amico, MD, ASPS President
Roberta Finley Morris, OTR/L, 2007 Vargas Recipient
8:45–10:15am PANEL: Wide Awake Hand Surgery
N. Bradly Meland, MD, Moderator
Donald Lalonde, MD
Wyndell Merritt, MD
Matthew Concannon, MD
10:15–10:45am Break with Exhibitors
10:30–11:30am Hand Journal–Editorial Board Meeting
10:45am–12:35pm Concurrent Scientific Paper Session A
12:35–1:00pm Lunch With Exhibitors
1:10–1:40pm Keynote Speaker: Ramez Naam
“More Than Human: From Therapy to Enhancement”
1:45–2:15pm PANEL: Scaphoid Fractures
Joseph Slade, MD, Moderator
2:30–3:30pm Instructional Courses
112 Complex Hand Trauma
Nicholas Volder, MD, Moderator
Steven Moran, MD
W. P. Andrew Lee, MD
113 Tumors of the Upper Extremity
Gene Deune, MD
114 Nerve and Tendon Transfer
Susan Mackinnon, MD, Moderator
Neil Ford Jones, MD
Christine Novak, PT, MS
115 The Assessment and Treatment of Peripheral Nerve Injuries in Children
Scott Kozin, MD, Moderator
Howard Clarke, MD
Lynn Bassini, OTR, CHT
116 Anatomy and Care of the Perionychium
Elvin Zook, MD, Moderator

AAHS
Friday, January 11, 2008
7:00–7:30am Annual Business Meeting
7:00–8:30am Continental Breakfast
7:30–8:30am Instructional Courses
117 Thumb Reconstruction
James Chang, MD, Moderator
Rudy Buntic, MD
Neil Ford Jones, MD
118 Outcomes of Nerve Decompression
Steven McCabe, MD, Moderator
Kevin Chung, MD
119 NCS Nerve Electrophysiology
Allen Van Beek, MD, Moderator
120 Basilar Joint Arthritis
Nash Naam, MD, Moderator
Miguel Saldana, MD
Jennifer Thompson, PT
121 Periarticular Elbow Fracture Dislocations: Will My Elbow Bend Again?
Robert Goitz, MD, Moderator
Paul Brach, PT, MS, CHT
Dean Soteranos, MD
122 Financial Planning for the Newly Established Surgeon
Patrick Donnelly, Smith Barney Consulting Group
Jeff Palmer, Smith Barney Consulting Group
8:35–9:35am PANEL: Cubital Tunnel: Defend Your Operation
Susan Mackinnon, MD, Moderator
Daniel Nagle, MD
A. Lee Osteman, MD
Dean Soteranos, MD
Tyson Cobb, MD
9:35–10:00am Presidential Address
N. Bradly Meland, MD
10:00–10:30am Joseph Danyo Presidential Invited Lecturer: Allen Van Beek, MD
“Handing Back Options”
10:30–11:00am Break with Exhibitors

11:00am–12:45pm Concurrent Scientific Paper Session C
11:00am–12:45pm Concurrent Scientific Paper Session D
12:00–2:30pm Board of Directors Luncheon/Meeting
12:45–6:10pm Comprehensive Hand Surgery Review Course
Randipsingh Bindra, MD, Chairman
12:45–1:00pm Vascular Disorders of the Hand/Reimplantation
William C. Pederson, MD
1:00–1:20pm Compressive Neuropathies & CRPS
Daniel Nagle, MD
1:20–1:40pm Thumb Basal Joint Arthritis and Wrist Arthritis
Alejandro Badia, MD
1:40–2:00pm Inflammatory Arthritis of the Hand and Wrist
Matt Tomaiolo, MD
continued on page 12
AAHS 2008 Program-at-a-Glance
Friday, January 11, 2008
continued

2:00–2:15pm Distal Radius Fractures
Peter J. L. Jebson, MD

2:15–2:30pm Distal Radioulnar Joint
Brian Adams, MD

2:30–2:45pm Scaphoid Fractures and Non-Unions
Mike Hayton, FRCS

2:45–3:00pm Brachial Plexus Injuries
Randy Bindra, MD

3:00–3:15pm Carpal Instability
Peter Amadio, MD

3:15–3:35pm Fractures of the Metacarpals and Phalanges
David Dennison, MD

3:35–3:55pm Flexor Tendon Injuries
Kevin J. Renfree, MD

3:55–4:10pm Infections of the Hand
Kevin D. Plancher, MD, MS, FACS, FAAMIC

4:10–4:30pm Congenital Hand Differences
Scott H. Kobrin, MD

4:30–4:50pm Tumors of the Hand and Wrist
Michael Bednar, MD

4:50–5:10pm Soft Tissue Coverage in the Hands
Loree Kallianen, MD

5:10–5:30pm Tendon Transfers for the Hand
Randipsingh Bindra, MD

5:30–5:50pm Tendonopathies and Dupuytren’s Contracture
Peter Murray, MD

5:50–6:10pm Questions/Adjourn

7:00pm AAHS Salsa Sensation Awards Dinner & Dance

AAHS/ASPN/ASRM Combined Day Program
Saturday, January 12, 2008

6:30–7:00am Coffee

7:00–6:00pm ASRM Patient Safety Computerized Presentations

7:00–7:15am Presidents’ Welcome
N. Bradley Meland, MD, AAHS President
Gregory R. D. Evans, MD, ASPN President
Lawrence B. Calen, MD, ASRM President

7:15–8:15am Panel: Treatment of the Ischemic Limb
William C. Pederson, MD; Moderator
Chris Attinger, MD
Craig Johnson, MD
Michael Neumeister, MD

8:15–8:45am Breakfast with Exhibitors

8:45–9:45am Panel: Tendon and Nerve Transfers for Common Upper Extremity Palsies: Consensus and Controversies

9:45–10:45am AAHS/ASPN/ASRM Presidents Invited Lecture: Aaron Vinik, MD
“Neurovascular Dysfunction in Diabetes”

10:45–11:30am AAHS/ASPN/ASRM Outstanding Paper Presentations

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Electrical Burns and Mutilating Injuries of the Hand

This issue’s topic is about two types of hand injuries that arise from a traumatic event. Moderating the discussion is Anthony Smith, MD, Head, Section of Hand Surgery, Mayo Clinic Arizona, Phoenix, AZ. The discussion panelists are hand surgeons Richard E. Brown, MD, FACS, Springfield Clinic, Springfield, IL and Clinical Professor, Division of Plastic Surgery, Southern Illinois University School of Medicine; Don Lalonde, MD, Professor Dalhousie University, Saint John, Canada; and L. Scott Levin, MD, FACS, Chief of Plastic, Reconstructive, Oral and Maxillofacial Surgery, Professor of Orthopaedic and Plastic Surgery, Duke University Medical Center, Durham, NC; and hand therapist Dorit Aaron, MA, OTR, CHT, FAOTA, Aaron & Rose Hand Therapy Services, Inc., Houston, TX.

Dr. Smith: Dr. Levin, when we talk about mutilating hand injuries, generally they are combined injuries. Can you explain what a combined injury is and what that means to those of us who take care of them?

Dr. Levin: Combined injury implies that there are multiple systems involved in the traumatic event. So if you look at all the systems, the motor tendon units to the vascular units, the neural units, the ligamentous units and skin, in a combined injury multiple systems are involved. The basic principle is to start out by looking at the skeleton and assessing whether there are deficiencies, fractures, or dislocations. That’s an absolute priority with these, that the skeleton be evaluated and reconstituted, and then we start building out sequentially from the skeleton, to vascular injuries, perhaps motor tendon if it can be repaired, and ultimately skin coverage.

Dr. Smith: That’s a great answer. Dr. Lalonde, is there anything that you’d like to add as far as general principles in dealing with these complex injuries?

Dr. Lalonde: I think that the most important principle in dealing with complex injuries is firstly to restore circulation. The sooner circulation is restored the less dead tissue there will be. Secondly, all dead tissue must be debrided to the best of our ability. If we leave dead tissue, germs will take over and our best reconstructive efforts will be for naught. Finally, the tissues that are remaining that are alive should be covered with well vascularized tissue to get a sealed wound where everything is alive. Bone, nerve and tendon gaps that cannot be immediately reconstructed can be reconstructed later after you have a healed, sealed wound.

Dr. Smith: Ms. Aaron, is there anything that you’d like to add from a therapy standpoint?

Ms. Aaron: Certainly, I like to see these patients as early as possible. The therapist has to move what they can and protect what they need to as soon as the patient is stabilized medically. Often times the patients conditions are so complicated that therapy is the last thing that is thought about. By the time they are sent to therapy it’s a little difficult to move them. Now, clearly there may be times that I should not move the hand, but I can position it and start moving what I can, such as the neck, shoulder and the elbow, whatever is viable to move. The skeletal stabilization and circulation will determine how quickly we can move in therapy. We can start protection and education at a very early stage. In therapy all affected areas need to be taken into account- not only the physical condition of the patient, but also the emotional and psychological state, family situation, vocational and cultural aspects.

Dr. Smith: Dr. Levin, how are the general principles that you talked about altered by mode of injury, and particularly the war-related injury?

Dr. Levin: First of all, in the extremity war injury, there’s a huge issue deciding on amputation versus salvage. And of course patients in the field that have multiple other injuries such as chest or abdominal injuries. Obviously it’s always life before limb, but one of the things that’s being done is employing the concept of damage control orthopedics. Something may be provisionally vascularized in a forward unit, covered with a biologic dressing.

continued
and then subsequently received away from the front, where more careful assessments are being made regarding salvage versus amputation. Unfortunately in Operation Enduring Freedom and Operation Iraqi Freedom the effects of RPGs and IED devices are so devastating that these are the most severe soft tissue and bone injuries we’ve ever seen in soldiers, both men and women. So not infrequently these limbs are amputated, but we have the skills and the abilities to salvage now more than we did 20 years ago. And with rapid deployment back to excellent care facilities we have a little more time to employ more modern techniques for limb salvage.

Dr. Smith: Dr. Brown, we’ve been talking about the general principles in dealing with mutilating injuries. How are these principles altered for an agricultural injury?

Dr. Brown: I believe that the principles are essentially the same, with a few exceptions. Obviously, with war injuries you’re often dealing with a high velocity projectile wound with a lot of blast injury. In contrast, in most of the agricultural injuries we see we have a much lower velocity type wound. However, that being said, the actual treatment of the injuries is frequently very similar. This generally involves a rapid assessment and stabilization of the overall patient. For the limb itself, you have to make a quick assessment on whether the limb is salvageable. That often takes some experience, knowing whether or not you can provide the patient a limb that is better than a prosthesis. Similar to the war injuries, you have to look at the extremity and look at the soft tissues and try to determine what is and isn’t viable and do some initial debridement and stabilization.

**2008 Application for Research Grants**

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Applications may be obtained from the AAHS website at www.handsurgery.org, or, you can call 312-236-3307 to request a copy. Applications (an original plus seven copies) must be received by the committee chair no later than Monday, November 5, 2007, in order for the judging to be completed in time and the recipients to be announced at the Annual Meeting.

The AAHS and the Research Committee are required by the IRS to document disbursement of grant funds. Award recipients will be required to sign a letter of acceptance and submit a progress report once each year. The AAHS must be acknowledged as the source of funding in any presentation or publication. A final report must be submitted at the completion of the study. It is expected that the results of the funded research be submitted for presentation at an Annual Meeting within two years of the receipt of the award.

Funds must be returned to the AAHS if the study is not undertaken within twelve months of the receipt of the award.

Failure to follow these guidelines will disqualify the recipient from any further grant opportunities and from presenting any papers at the AAHS Annual Meeting for a period of three years following such default.

**Mail Grant Proposals to**

Michael Neumeister, MD
American Association for Hand Surgery
20 North Michigan, Suite 700
Chicago, IL 60602
of the extremity. And then you can step back and try to decide what needs to be done next.

**Dr. Smith:** Dr. Lalonde, do you have anything to add as far as the agricultural injuries?

**Dr. Lalonde:** I think the only thing that I might add is that broader antibiotic coverage is needed with agricultural injuries because there tends to be a higher incidence of gram negative and anaerobic organisms. I also tend to do more irrigating with these dirty injuries. I like to irrigate with copious amounts of dilute Betadine solutions because I think that Betadine is a very good germ killer all across the board, and I have not found it toxic to the tissues in many years of use.

**Dr. Smith:** Dr. Levin, what would be your sequence in a devascularized upper extremity with a concomitant open fracture? Would you deal with the fracture first or would you revascularize the extremity first? Or would you shunt the upper extremity and then deal with the fracture?

**Dr. Levin:** Dr. Smith, you hit the nail on the head. Certainly there’s nothing wrong with using a shunt. The shunt buys you time, it allows you to reperfuse muscles that are susceptible to ischemic necrosis. So I like to use shunts and then go ahead and débride, take time to figure out the fracture fixation, and then subsequently do the staged reconstruction as Rick mentioned, with motor tendon units, nerves if they can be repaired primarily and so forth. But I would agree with the rest of the panel that the first obligation is revascularization. You can just imagine the time it takes if you had to do radial/ulnar artery grafting, maybe venous interposition grafting. You want to have your shunt going so that the distal extremity is perfused, and then you go ahead and harvest your saphenous vein and do your interposition grafting. And the shunts have afforded us quite a nice window of time, an hour and a half to 2 hours in a lot of cases. You can get a lot of things done while that shunt’s working.

**Dr. Smith:** How have the newer advances in fracture fixation influenced the treatment of these mutilating injuries?

**Dr. Levin:** Locking plates are basically internal external fixators. Lock the screw to the plate and the interface to the bone becomes extremely strong. You can even span an antibiotic spacer in cases where there’s a lot of bone loss. And it obviates the need for external fixators, which often can interfere with flaps and other methods of coverage. The other method for the forearm at least has been the use of flexible intramedullary nails, which are very good devices that are rapid and can help maintain the interosseous space. The only thing they’re not good for is individual bone rotational control.

**Dr. Smith:** Dr. Brown, as we proceed down through the sequence, we have a patient with a forearm injury, we’ve placed a shunt, the upper extremity is revascularized, we’ve gotten fixation, and we’re to the point of revascularizing the upper extremity with vein grafts. Do you have any tricks to keep these long vein grafts open?

**Dr. Brown:** I will also sometimes use shunts to stabilize the extremity which then allows me or my orthopedic colleagues to get stabilization of the bony structures. Following that, then I will usually do the formal revascularization. And I think one important thing to remember is that at times we can use the native vessels despite the fact that they’re in the zone of trauma. I know at times that may sound like heresy, but in many revascularizations the vessels if you look at them under the scope, might not be as bad as you expect, even though they might be a little bit bruised. Having said that, if we can’t do an end to end repair, then I will frequently use the lesser saphenous vein for upper extremity arterial repairs. The size match is very good. I mark the vein during harvesting to avoid any rotational torsion of the graft. I also routinely heparinize patients with severe mutilating injuries if I do have to do a revascularization. After the revascularization, I do the débridement and my temporary coverage, whether it be temporary primary closure, planning a 2nd look operation, or doing a dressing changes or perhaps even pig skin coverage if we’re going to plan on coming back in 24 to 48 hours. If I can accomplish wound closure with skin grafting, I will often do that even directly onto muscles.

**Dr. Smith:** And you would do that the night of the injury?

**Dr. Brown:** No. I will rarely do any kind of reconstructive procedures at the time of the initial injury. I do not believe there is an indication for a true emergency free flap. The one exception to that is the use of spare parts. I’ve done that on many occasions where I have a part that's not going to be replanted. For example I have done a filet flap on several occasions, such as a radial forearm filet flap to cover an upper arm or proximal forearm amputation stump. Even smaller parts such as filet fingers, nerves, bone, or skin may used for acute reconstruction rather than discarding the part. In that case I feel you have nothing to lose, but I will not harvest other tissues acute-
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ly to do an acute closure. I’m a firm advocate of doing sequential débridements and then planning a definitive closure, usually within 5 to 7 days.

**Dr. Smith:** Dr. Lalonde, is there any role for the vacuum assisted closure in the treatment of these patients?

**Dr. Lalonde:** Before I answer the VAC question, I would like to add one thing that I find useful for vein grafting. If I am revascularizing parts of the hand or fingers with small vein grafts, they often go into spasm during the harvest. If I put Papaverine on the exposed vein graft before taking it out of the donor site, and then leave it be for 15 or 20 minutes and do something else, I’ll come back and the little vein which had gone into spasm is now being nicely perfused with blood. It is now ready to take out of the donor site.

I think that the vacuum assisted closure has changed a lot of things for the better. It is particularly useful if there are no vessel anastomoses exposed. The VAC unfortunately, can blow anastomoses open even if you decrease the pressure. If there are no freshly repaired vessels, the VAC does a few things. Firstly, it draws away fluid that’s just sitting loosely in these badly injured wounds. If you have fluid just sitting there for a day or two it’s a great culture medium for bacteria. The VAC draws away the fluid and fixes it so that the only thing that’s left in the wound is vascularized tissue, particularly if you’ve been able to debride all of the dead tissue. When you put a VAC on a wound that has been completely debrided, it almost acts like a sterile coverage for the wound. It can buy you time before definitive closure, and sometimes will provide definitive closure. It can also buy the patient comfort. However, it is critical that all dead tissue should be debrided.

My routine would be debridement until I’m absolutely sure that there’s no dead tissue left in the wound. I then apply the VAC for 2 or 3 days, so we can organize to have definitive coverage, often requiring a free tissue transfer. The VAC will also generate granulation tissue and often decrease the need for free flaps, even in complex injuries. We’ve been able to have a number of our exposed bones and tendons covered with VAC generate granulation tissue, and then secondarily skin grafted or directly closed the wound.

**Dr. Smith:** Ms. Aaron, your point from a therapy standpoint is that you want to be involved with these patients early. In these patients with a revascularization and extensive débridement, when would you like to be involved?

**Ms. Aaron:** That’s an excellent question. I think part of the answer depends on what setting you’re in and how familiar the staff in the hospital is with post op positioning and elevation and keeping the limb warm. If you have a great staff that you’re working with, then I would like to see the patient as soon as the surgeon feels that they are stabilized enough, especially vascularity. If there is not that kind of care in the hospital, then I would like to come in and see the patient immediately post op. It is never too early to start education for hand dominance transfer if need be, so the sooner we get them started, the better.

**Dr. Smith:** Dr. Brown, how do you approach an upper extremity electrical injury, and what special considerations are there when dealing with that type of injury?

**Dr. Brown:** With the electrical injury you must remember the other aspects, especially with regard to urine output, myoglobinuria and renal shutdown. Generally, if they’ve had an electrical injury and they did not have any cardiac events at the scene it’s unlikely that they’re going to have any cardiac events from the electrical injury.

Those 2 major things being said, you then have to deal with the electrical burn itself. I think you have to use a high index of suspicion in these injuries for consideration of compartment syndrome, and do fasciotomies as needed. Even then, these injuries may progress on to a shutdown of the microcirculation and subsequent loss of the extremity. So I think you have to initially be very aggressive and then wait and see whether the extremity survives or not.

**Dr. Smith:** Dr. Lalonde, one of the problems in dealing with upper extremity electrical burns is that the skin injury really in no way reflects injury to the underlying tissue. Could you just tell us a little bit from a pathophysiology standpoint why that occurs?

**Dr. Lalonde:** Electrical injury kills tissue with current and heat. Bone can actually get quite hot depending on how much current is involved, and the muscle surrounding the bone can end up having more damage than the more superficial muscles because of the heat that’s created in the bone. When you are debriding electrical injuries you often think: “Well that’s good, I’m down to live tissue”. You then come back the next day and you find out that you still have more dead tissue. That really is one of the biggest challenges with electrical injuries; deciding which muscle is alive and which is dead. I think that probably the best strategy is to be more aggressive in daily débridement. If we can get to bleeding muscle all around, and if

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**continued**
we can cover that before we get a large bacterial contamination, then we can win. If we spend too long debriding and waiting and allowing bacterial contamination to happen in muscle that is marginally vascularized, then it may end up being too late and we end up having to amputate. There has been some success reported with early free flap coverage after the devitalized tissue is removed, but even in the best of hands these can be lost. Electrical injuries are just very difficult.

**Dr. Smith:** Dr. Levin, Dr. Lalonde brought up the use of free tissue transfer in electrical injuries, what would be your timing if you were treating one of these, and what would be the role of pre-operative angiography?  

**Dr. Levin:** I agree with Dr. Brown and Dr. Lalonde. Graham Lister’s article on emergency free-tissue transfer is, in my opinion, too radical an approach and sets one up for a lot of potential morbidity and limb loss, because we won’t be able to be sure of the completeness of the debridement. As to timing, I don’t usually jump in at 3, 4, or 5 days and try to do a functioning muscle transfer. I might consider a coverage flap at that point, as with any other extremity trauma. But if a patient needed a functional muscle transfer, I would delay until we had a good stable soft tissue envelope, we’ve assured that the extremity is going to survive, and we’ve engaged our therapist to mobilize and position and splint joints so that we have a chance at a functional outcome.

**Dr. Smith:** Dr. Levin, in the upper extremity electrical injury, what is the role for an upper extremity angiogram?  

**Dr. Levin:** In my practice, we make a lot of use of intraoperative Doppler. If we have a totally thrombosed radial artery, for example, , I’m going to palpate, I’m going to have my loupes on, I’ll bring the scope in, and I want to be able to listen to that artery inside, too, with my Sterile Doppler. If I have a marginal Allen’s test or I see a hand that’s dying back I don’t really need an arteriogram to tell me that that’s going to be a bad situation. So I would say in my practice there is a limited use of arteriograms. Now that’s not to say that if I have a mutilating injury, I may do an arteriogram to see just what the character and the quality of the vessels look like, but not in the electrical burn.

**Dr. Brown:** There is one thing I might add about the electrical burn which is a little bit different than the other mutilating injuries. I would agree with Dr. Levin on traumatic mutilating injuries that the use of the acute arteriography is probably rarely indicated because we can look right at the vessels. I published a paper on the use of MR Scans in frostbite injury and it was very accurate in demonstrating the viable tissue, especially soft tissue much earlier than what we would see clinically. So if you are several days down the road and you’ve been worried about the deep muscle injury in electrical burns, I think an MR scan might be a useful tool to demonstrate areas that might be severely injured that might not be readily visible.  

**Dr. Levin:** I’d agree with that.
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HAND
The Official Journal of the American Association for Hand Surgery

Editor-in-Chief: Elvin G. Zook, M.D., SIU School of Medicine, Springfield, IL, USA

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Dr. Lalonde: I agree with Dr. Levin that keeping MP flexion after these mutilating injuries is a big problem. Last week I operated on a fellow who had a mutilating dorsal saw injury and had significant loss of parts of 3 metacarpals. All of the extensor tendons and the skin were pretty badly chewed up. We actually managed to get things together reasonably well with plates and the bone that was left there. We repaired the frayed tendons and almost completely closed the skin except for a few little holes. We put a VAC on top of the relatively closed skin acutely. When we took that VAC off at 24 and at 72 hours, we were very impressed by how little edema there was in the hand. I do think that the VAC drew off the fluid and greatly decreased the edema. We also used temporary K wires through the MP joints to keep them at 90 degrees for a few days. This helps the therapists to get a head start to keep them able to flex the MP joints.

Dr. Brown: The only comment I would add is that you have to over exaggerate with your splints. It’s amazing how many times you will look at a splint and say the fingers are in a good intrinsic plus position, but if you then get an x-ray, it’s amazing how little you actually have the MP’s flexed.

Ms. Aaron: I think the biggest problem is the small finger. It’s so easy to block it rather than push it into flexion. And so when you check your splints, one of the things I would advise is always look at it from the ulnar side and see if that slope is really going down where it needs to, so that the 5th MP can be adequately flexed.

Dr. Brown: Once you get that MP in extension it’s very difficult to fix.

Ms. Aaron: That’s right, getting in there early and positioning them in flexion is much easier than getting rid of a tight extension posture later. It also allows for functional use of the hand with minimal joint motion if that is what ultimately happens.

Dr. Smith: Dr. Lalonde, you mentioned the use of K wires in these complex injuries for a short period to maintain positioning of the hand. How about maintaining the first web space with the use of an external fixator?

Dr. Levin: Louis Scheker, in Louisville, showed that to me, and I have used it particularly when I’ve done lateral arm flaps for thumb/index web release. That fixator is just so helpful, it’s simple and it doesn’t give the hand a chance to recoil against the release. And of course releasing scar now, I’m talking about elective stuff, but you’re right – in the mutilated hand with a roller or crush injury for example, I’ll put that Kirschner wire between the 1st/2nd or an X fix and not even think about it.

Dr. Smith: When we see these devastating injuries, one of the questions is, is the upper extremity worth salvaging? Are there any guidelines as to when a patient needs a primary amputation?

Dr. Brown: What I teach the residents is that when you come into a room and look at an extremity, the first thing to do is ask yourself: can I give them something better than a prosthesis? And I think one of the key factors in determining that is whether you can give them a stable, sensate extremity. If I can’t do that, then I think I’m not going to give them anything better than a prosthesis. Even if they can open and close the hand, if it’s numb it’s not much better than a prosthesis. So that’s one of the key factors for me in trying to determine whether or not I want to proceed with extensive salvage and reconstructive efforts. If I can stabilize and eventually close the extremity, and give them at least protective sensation, it’s better than a prosthesis. Even in a patient that I did a cross hand transfer on, that decision came into mind. He can open and close and he has protective sensation back so it’s much better than a prosthesis. So I think that’s probably the key factor in my mind in helping determine whether I want to go to extraordinary means to try to salvage an extremity.

Dr. Lalonde: I agree. Function and sensation are paramount. However, amputating an upper extremity is much harder for me to do than amputating a lower extremity. Appearance counts more for upper extremities. Even a hand that’s insensate and has very little function is going to attract a lot less attention for a patient in a social setting than if there is a hand amputation. You can hide an amputated foot or an amputated leg, but you can’t hide an amputated hand. We’ve all known patients who’ve had brachial plexus injuries for example, who don’t want to have an amputation because of that. What I often do is look at the patient and try to understand what they want, who they are and where they’re coming from. If they ask for my advice, I look at the problem as if it were my own and I ask myself: “If this were my upper extremity, would I want to have an amputation or not?” And generally speaking, what is good for me or what I might do if the patient were my...
Dr. Levin: My decision making in 2007 takes into consideration things like the vac, dermal substitutes, Integra, perforator flaps, nerve conduits, nerve allograft, locking plates, and bone morphogenetic protein. We have so many more tools at our disposal now to reconstitute, or even transplant, limbs. Sterling Bernell said a little can be a lot to somebody who doesn’t have anything. A lot of it, to me, depends on the patient’s age. A 73-year-old diabetic with 15% ejection fraction the night of injury, mutilated hand, both nerves cut, need for intercalated bone reconstruction, on and on, I could paint a bad scenario. ... I think you do that patient a disservice by being too aggressive with that kind of hand. On the other hand, in the case of a 20-year-old laborer, maybe with bilateral injuries, we owe that patient the best attempt.

One of the things that I think people fail to do is immediately start a dialogue, with the patient if able, and, certainly, with the family. The dialogue has to take place. And I often tell my patients, “I’m going to make a contract with you. You’ve shattered your bones, you need a functional muscle transfer, you need this free flap, we have to revascularize, if at the end of a year I can’t give you a hand that’s going to function better than a prostheses, then I’m going to amputate your arm.” We all know about the syndrome that’s been described more in the lower extremity where patients and physicians embark down this pathway of salvage and then for whatever reason—infected, pain, inability to get the wound to heal, it festers forever—that’s not what we should be doing in 2007. I think there are cases in very severe injuries, and we’ve seen this from

continued on page 22
all over the world, where great
saves take place every day. My
point is that we have to individu-
alize every case. I’ve replanted
hands that people have said to me
at the time ‘this is ridiculous’. But
now they have protective sensibili-
ty, they can flex and extend,
they’ve maintained their body
image, it’s a helper hand and it’s
functioning better than a prosthe-
sis. To me, that’s a victory in a
mutilated hand injury.

And then of course there are cer-
tain things we all see that are just
so devastating: the wood chipper
injury, the horrible burn, crush,
press with massive avulsion of
motor tendon units. These are
extreme examples, but they deserve
immediate amputation as the prac-
tical thing to do. But I think most
of us who are doing this work day
in and day out, in major centers
that have experience and microvas-
cular capability, do put ourselves in
a little different domain. And if we
really look into our bag full of
tricks in 2007, I think we’d all agree
that we have changed what we can
and can’t salvage. I do also think
that the informed consent dialogue
with family and patient and the
decision to make an end point are
important. If the first flap has a
problem, such as ongoing infection
despite the best attempts, that
patient can be prepared for an
amputation sooner rather than
later.

Dr. Brown: I’m in full agreement
with Dr. Levin on the discussions
with the family and the patient. I’ll
never forget the first paper I ever
presented as a plastic surgery resi-
dent that was on the multi-free flap
extremity. I have never forgotten
that, because one of the patients
had had four free-flaps to try and
salvage a leg, and then eventually
committed suicide. We don’t
always know what’s best for each
individual patient. As Dr. Levin
said, it may vary from patient to
patient and it’s very important to
have ongoing dialogue with these
patients and their families. I’m sure
all of us at some point in our career
have gone to an extreme effort to
save an extremity and then looked
back in retrospect and say, well,
maybe we didn’t do the right thing
either.

Dr. Smith: Ms. Aaron, looks like you
get the last comments for the con-
ference. What would you like to
add?

Ms. Aaron: Therapy is guided by
what you surgeons do, how you do
it, and how the patient responds.
The most dangerous thing that
therapists can do is follow a set
protocol with these patients rather
than looking at each particular
patient, each particular limb, and
each particular tissue in making the
decisions for that patient at that
time in the healing process. When
you do choose to salvage, then it’s
our challenge to make it work, to
make it the best it can be, and to
have the patient integrate that limb
back into a functional person. We
need to keep the vascularity intact,
control the pain, reduce the
swelling, reeducate the sensibility,
make sure that whatever motion
we can get, we get, and make sure
that the patient’s attitude is as
good as it can be about it. We may
need to change their hand domi-
nance, train them to do one-handed
activities, or train them for a new
type of job. Our job becomes very
critical, after you have made the
important decision: to keep or not
to keep the limb.

Dr. Smith: Thank you all for your
time and participation in this dis-
cussion.
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2007
October 26–31, 2007
ASPS Annual Meeting
Baltimore, MD

2008
January 9–12, 2008
38th Annual Meeting
The Westin Century Plaza Hotel & Spa
Beverly Hills, CA
March 5–9, 2008
AAOS Annual Meeting
San Francisco, CA
June 27–29, 2008
AAHS Mid-Year Board of Directors Meeting
The Ritz Carlton, Laguna Niguel
DanaPoint, CA

2009
January 7–10, 2009
39th Annual Meeting
Grand Wailea Resort
Wailea, Maui, HI
February 25–March 1, 2009
AAOS Annual Meeting
Las Vegas, NV
September 2–5, 2009
ASHT Annual Meeting
San Francisco, CA

2010
January 6–9, 2010
40th Annual Meeting
Boca Raton Resort & Beach Club
Boca Raton, FL
October 1–6, 2010
ASPS Annual Meeting
Toronto, Canada

2011
January 12–15, 2011
41st Annual Meeting
Ritz Carlton Cancun
Cancun, Mexico
September 23–28, 2011
ASPS Annual Meeting
Denver, CO

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