Hand Therapy in the Land of the Navajo Nation

The site of the 2003 Vargas International Hand Therapy Teaching Fellowship was Chinle, Arizona, in the Navajo Nation, the largest Indian reservation in the United States. Paul Brach PT, CHT from Pittsburgh, PA, and Sue Michlovitz PT, PhD, CHT, from Philadelphia, PA, were recipients. The accompanying physicians during the June, 2003 visit were Brian Adams, MD from Iowa City, IA, and Lee Osterman, MD from Philadelphia.

There are more than 200,000 Navajo over 14 million acres populating the sovereign nation. The Navajo Nation is defined and bound by four sacred mountains and four rivers and called “Din’e be keyah,” e.g. Navajo land. The Navajo Nation is the largest Indian Nation and most Navajo live on the “big rez” which includes parts of Arizona, New Mexico and Utah. Children raised on the reservation continue to herd sheep and cattle like their ancestors did centuries ago. Many different forms of religion are practiced on the reservation as well. An interesting resource on Navajo events and governance can be found on line at www.navajo.org.

Diabetes, obesity, substance and domestic abuse are prevalent with the Navajo. Managing the healthcare needs of this population is challenging and often frustrating because health care choices and access on the reservation are very limited. Many Navajo still go to the local medicine man or woman to relieve their maladies. Herbalists and participation in healing ceremonies are still commonplace. However, traditional medicine is practiced at Chinle Hospital.

continued on page 4
Still A Mystery

This issue of HSQ focuses on carpal tunnel syndrome, the most common condition operated on by hand surgeons. Yet, despite the familiarity all of us have with this common condition, there are many significant features of this disorder which remain a mystery to us, most significantly, what CAUSES carpal tunnel syndrome in its most common presentation, in an otherwise healthy middle aged person, usually female? In most series, this group represents more than half of all cases, yet all we know is that the condition gradually develops, that its symptoms are aggravated by certain typical activities, and that modification of those activities, night time splinting, steroid injections and, most effectively, surgery, can relieve those symptoms.

Is CTS a condition of aging? If so, why does its incidence peak in middle age, and then fall, rather than steadily rise with age, as does the incidence of osteoarthritis, osteoporosis, and some cancers? If it is a condition associated with certain diseases or activities of middle age, which ones? Is the modern workplace a cause? Modern lifestyles? Or are we just more aware of smaller problems in middle age, because so many of the big ones have gotten so much less common?

We don’t even know whether the primary pathology of CTS is in the nerves or if the condition begins elsewhere, in the synovium perhaps. It may be that the neuropathy of CTS is secondary to some other condition, such as physical trauma to the tendon sheaths, or even an ischemia-reperfusion injury within the carpal canal.

We do know something about the risk factors for CTS, which include diabetes, rheumatoid arthritis, obesity, and smoking, as well as certain occupations. But do each of those produce CTS in the same way, or is the median neuropathy merely the final common pathway for a multitude of pathogeneses?

We probably shouldn’t complain too much. CTS doesn’t kill, or even seriously maim. And, in surgery, we have an effective treatment with little morbidity. The discussion “Around the Hand Table” in this issue will illuminate some of the finer points of treatment. But, still, there are all those questions. It would be good to know how CTS comes about, and whether we could make it go the way of, say, peptic ulcers, for which not too long ago surgery was also a common treatment. I’m counting on one of you to figure it out. Good luck!

From the Editor’s Desk

Peter C. Amadio MD

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“Let’s Get Involved”

This column in the last *Hand Surgery Quarterly* discussed the concept of the “organizational core competencies” and defined two basic areas of concentration: “service to members” and “service to community”. Since the last publication, the Board of Directors has continued to strive toward these goals with numerous member appointments to liaison and working positions in committees in our affiliated organizations. The Work-Related Upper Extremity Disorders course has accelerated in registration and is right on track to be yet another successful educational venue.

As a recent development, I am most pleased to announce the co-sponsorship of the Hand Surgery Program of Specialty Society Day associated with the annual meeting of the American Academy of Orthopaedic Surgeons, beginning with the 2005 meeting. Dr. Neil Ford Jones has agreed to represent the AAHS in this most important endeavor, and is particularly well suited for the task. He has been an elected member of both the Board of Directors of the AAHS and the Council of the ASSH, and thus knows in detail the nuances and needs of both organizations.

The agenda for the summer Board of Directors meeting is nearly complete and will include discussion about the future of the AAHS, including strategic planning efforts for education and mentorship. We need to hear from you, the members of the AAHS, about what materials you are most interested in exploring educationally, and in what venue you would prefer that educational materials be presented. Your input is critical. We will also be exploring ways in which we can attract hand surgeons and affiliates into membership in this outstanding organization, how to attract surgical residents into the field of hand surgery, and medical students into surgical residencies that can lead to careers in hand surgery. Each of us knows how rewarding such a career is—we just need to find better ways to get the word out to the next generation. Our future as a discipline, let alone our organization, depends upon it.

Again, if you have ideas, please do not hesitate to send them in. Also at the summer Board of Directors meeting, the presidential lines of both the AAHS and the ASSH have committed to holding a summit meeting to continue strategic planning for both groups in areas of mutual interest.

All of these activities, plans and strategies don’t mean a thing, though, if they don’t live up to the expectations of the membership. The American Association for Hand Surgery exists for the benefit of its members and society, not the other way around. This means that it is member owned and operated, and members need to express their needs. The Board of Directors needs your input about what you as members want and need from the organization. We also need your help. In his stimulating presentation at our 2004 annual meeting, Dr. Elvin Zook emphasized the need for creating a positive role model if we ever hope to attract young physicians and therapists into the realm of upper extremity care. He hit the nail on the head when he gave a list of dos and don’ts, including the need to stop complaining about the shortcomings of our career choice and to celebrate the benefits and privileges that it brings. This includes getting involved with the AAHS.

There are a number of task forces and committees that could use your help. We are forming new committees to fill the needs of our expanding agenda. We need help recruiting new members and forging new liaisons with other organizations. We are also preparing programs and press kits that you can use in your own communities for public service announcements regarding seasonal injuries. So please, let us know if you would like to become more involved. Let us know if you have professional concerns that you think the AAHS might be able to help you address. You can reach us through the Central Office, or e-mail me directly at berger.richard@mayo.edu.

In the meantime, please mark your calendars for the annual meeting at the Sanibel Harbor Resort and Spa, January 12-15, 2005. We have a terrific educational program to offer to you and the location promises to be superb for the entire family. The call for abstracts will be initiated soon.

One more time—join the fun by becoming involved in the activities of the AAHS. Help the AAHS help you.
2003 VARGAS REPORT

continued from page 1

comprehensive health facility. The hospital is a branch of the Indian Health Services, part of the United States Public Health System. Chinle Hospital is where the Hand Therapy program is based and is also the only hospital on the reservation where hand surgery is performed.

The Navajo patients travel from New Mexico, Utah, Arizona and Colorado to be seen by the hand surgeon at the clinics, which are held on two consecutive days, eighteen times a year. The hand surgeons volunteer their time and services. The therapist who coordinates the surgeons’ scheduling, as well as being the “workhorse” of the clinic is Andra Botacchio, PT. She assists with patient assessment and also coordinates the patients’ screenings for surgery, arranges the pre-operative lab work, orders the appropriate equipment for surgery and therapy, arranges for transportation, schedules the cases for surgery, and performs the education for patient and family. The therapists at the facility also communicate with therapists from other locations across the “rez” to relay information on post-operative care.

However, the challenges of healthcare that the Navajo face are immense. Not only is there a 1-2 month wait for surgery, but poor transportation and adverse weather can play a role in attendance. (There were numerous dust storms during our two week stay.) Almost fifty percent of the Navajo lack phone service and “modern” utilities, such as running water and electricity which may affect wound care needs, are practically non-existent. Then there is the language barrier with the older Navajo. Translators are available to take care of this interface with health care providers.

Our responsibilities during the two week stay in June, 2003, were to provide hand therapy services, as well as educate the health care providers, including therapists of the Indian Health Service. Our first day consisted of checking in with the hospital supervisors and filling out the reams of paperwork the government demands to “clear” you to work at the hospital. After the check-in period, the other days consisted of a physician day for patient exam and treatment with therapist input. Treatment recommendations were given; surgeries were scheduled if needed, as well as the follow-up appointment. The education day was a seminar given by the team of therapist/surgeon. However, the challenges of healthcare that the Navajo face are immense. Not only is there a 1-2 month wait for surgery, but poor transportation and adverse weather can play a role in attendance. (There were numerous dust storms during our two week stay.) Almost fifty percent of the Navajo lack phone service and “modern” utilities, such as running water and electricity which may affect wound care needs, are practically non-existent. Then there is the language barrier with the older Navajo. Translators are available to take care of this interface with health care providers.

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Paul Brach, PT, CHT demonstrating examination of the wrist during afternoon Lab session on education day.

Andra and Joe

Sue Michlovitz, PhD, CHT, Lee Osterman, MD and his family and a Navajo guide hiking in Canyon De Chelly.
ment techniques, such as exercise progression, wound care, and splinting. Our one “free day” was spent exploring and investigating the Navajo culture where we could hike and or drive through Canyon De Chelly (pronounced Canyon De Shea). A Navajo guide is required at all times while hiking or driving the canyon floor.

The education seminars were very well received and appreciated. There is so little time to leave the Navajo nation for any form of advanced continuing education opportunities. There needs to be some form of continued support where visits are made on a yearly basis and possibly doing some long distance education online or through video conferencing. This would be a good role for the AAHS, since so much of our mission is grounded in education.

The two weeks spent in Chinle were something that we will not soon forget. The hospitality, knowledge and friendships gained will last us a lifetime. We would like to thank Andra Bottachio, PT for all her efforts in hosting us, and the Hand Surgery Endowment Fund for this experience at Chinle.

Senior Director at Large
Allen T. Bishop, MD

Allen T. Bishop, MD was elected to the Board of Directors as Senior Director at Large in 2004. He became a member of the American Association for Hand Surgery in 1991 and has served on many committees since that time, including the Resident Paper Awards Committee 1992, Education Committee 1992-1997, Research Grant Committee 1993-1995, and Scientific Program Committee 1994-1996. He served as Chairman of the Education Committee 1994-1996, and was a member of the Board of Directors 1994-1996, and Membership Committee 1995-1996. He first presented a paper at the 1989 AASH Annual Meeting in San Francisco and has participated in many subsequent presentations, panels, instructional courses, and posters for the AAHS. Dr. Bishop was Chairman of the AAHS “Soft Tissue Coverage of the Hand” Winter Trauma Meeting in March, 1996 at Breckenridge, CO. He was Co-Chairman of the IFSSH Post-Congress meeting following the 7th Congress of the International Federation of Societies for Surgery of the Hand in May, 1998, in Victoria, British Columbia, co-sponsored by the American Association of Hand Surgery and the American Society for Surgery of the Hand (ASSH).

Dr. Bishop attended college at Saint Olaf College, followed by Mayo Medical School and an Orthopedic Residency at Mayo Clinic College of Medicine. He earned a Master’s Degree in Orthopedic Surgery from the University of Minnesota, and completed a Hand Surgery Fellowship at Indiana Center for Surgery and Rehabilitation of the Hand subsequently. He has been on Staff at the Mayo Clinic, Dept. of Orthopedic Surgery since 1987. He is a Professor of Orthopedic Surgery, Mayo Clinic College of Medicine and serves as Chairman of the Division of Hand Surgery and Director of the Microvascular Training Center in Rochester.

He has been active in research, and has received three AAHS grant awards in support of basic science research activity in the past. Currently, he heads the Microvascular Research Laboratory and is the recipient of a National Institutes of Health grant 5R01AR049718-02, “Angiogenesis and long-term bone allograft survival”.

Dr. Bishop is active in other organizations as well, including the ASSH, American Academy of Orthopaedic Surgeons, American Society for Reconstructive Microsurgery, and World Microsurgery Society. He has received some recognition for his academic accomplishments, including the 1995 Sterling Bunnell Traveling fellowship. His clinical practice currently focuses on reconstructive microsurgery. Many publications in the past have focused on microsurgical topics, and he has a long-standing interest in vascularized bone transplantation. At present, Dr. Bishop’s practice is largely focused on brachial plexus reconstruction, as a member of the Mayo Brachial Plexus Clinic with Drs. Robert Spinner and Alexander Shin.

Outside of medicine he enjoys music, playing for the last 27 years as Principal Oboist of the Rochester Orchestra. He looks forward to the opportunity to further serve the AAHS, and strongly advocates the need for collaboration, communication and collegiality between all hand specialists, regardless of training or practice focus.
A Good Year

It is a pleasure again to report to you from the Finance Committee, as treasurer of the American Association for Hand Surgery, for the year 2003. The office of the treasury includes one year of treasurer elect and this is my last treasurer’s report, finishing my four year elected appointment as your treasurer and finance committee chair.

2003 on paper, as you can see from the tables, was a phenomenal year for the hand association. Despite difficulties in membership loss, dues income loss, increasing expenses for annual meeting, administration and web site development, the association continues to be strong financially. This is due to tremendous leadership from Laura Downes-Leeper, CAE, and her staff in the Central Office, from our investment advisor, Jeffrey Palmar, with Smith Barney, from our business manager, Peter Kuhn, and from Alan VanBeek, Dick Berger and Susan McKinnon, our executive committee who have held a tight reign on expenses and spending.

The assets on December 31, 2003, totaled $895,993. In 2002, because of a bad investment year and some loss in the annual meeting, there was an annual net income loss of $58,000. In 2003, we turned that around. It seems that Hawaii is an excellent venue for the association. The meetings are always well attended. We had a net income of $119,217 and an extremely good year in our investment portfolio with net assets totaling $985,570.

As you can see from income, dues income continues to drop although in small amounts. Our dues income was down about $3,000 to $185,120. This is concerning to the finance committee, since it seems to drop by a few percentage points every year due to loss of membership from attrition and I’m sure from the current status of economics in practice. The annual meeting income was $251,527 with net annual meeting revenue of $34,000.

Our annual meeting expenses are going up every year and this is primarily due to tremendous increases in audio/visual equipment, required to run the current technology in our meetings. We believe this is money well spent and certainly will not be going down, but it certainly adds to the educational venues of our meetings.

Expenses tracked on budget very closely and we had no problems on maintaining our budget from all of our committee chairmen, administrative people and executive council. Publication costs were down substantially, $8,000 at $36,201. Annual meeting costs were $216,656. Although that is less than 2002, that is primarily because the 2002 meeting was more expensive because it was held out of country.

Table 1

<table>
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<th>Income</th>
<th>2002</th>
<th>2003</th>
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<td>Dues</td>
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<tr>
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<td>Net Annual Meeting</td>
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<td>Investment Profit (Loss)</td>
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Table 2

<table>
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<tr>
<th>Expenses</th>
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<td>Board/Committee</td>
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Table 3

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<th></th>
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<tr>
<td>TOTAL INCOME</td>
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<tr>
<td>TOTAL EXPENSES</td>
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<td>NET INCOME</td>
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<td>NET ASSETS</td>
<td>$895,993</td>
<td>$985,570</td>
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It has been a pleasure to serve as your treasurer the past four years and as chairman of your financial committee. It is certainly a much simpler job when the association is doing so well financially. Our leadership has maintained our budget and the budgetary process is closely watched. My main concern in leaving as your treasurer is maintaining membership, dues income and the members who are maintaining their membership, it is important to support our annual meeting. Annual meeting costs are going up, annual meeting revenues are going down. This year’s venue with Dick Berger at the helm is an excellent location in Sanibel Island and I encourage all of you to come to our meeting, bring a friend and to find an associate to join this fine organization. You will be in good hands next year as Rick Brown as treasurer elect has been working with me and will be working with me in the ensuing several months.

Again, I thank you for the opportunity of serving as your treasurer and hope we can all maintain the excellent financial status that we have achieved over the past several years in growing this organization.
Carpal Tunnel Syndrome

The moderator for this issue’s discussion is Ather Mirza, MD, of Smithtown, NY. He is joined by Tyson K. Cobb, MD, an orthopedic surgeon in Davenport, IA; Edward Diao, MD, Professor of Orthopaedic Surgery and Neurosurgery, Chief, Division of Hand, Upper Extremity & Microvascular Surgery, Medical Director, UCSE/ Mt. Zion Orthopaedic Surgery Faculty Practice, University of California, San Francisco; Thomas (Tom) Trumble, MD, Professor, Department of Orthopaedics and Sports Medicine, Chief of the University of Washington Hand Institute, Seattle, WA; and Aviva Wolff, OT, CHT, Hospital for Special Surgery, New York, NY.

Dr. Cobb: Dr. Mirza, are you performing open or endoscopic carpal tunnel releases?

Dr. Mirza: I’m doing almost 99.5% endoscopic procedures. This is a distal to proximal approach, with a single palmar incision that I developed in 1995 with the help of AM Surgical, Inc. We believe that the advantage is the identification of key anatomy in the palm, which is so vulnerable with other endoscopic techniques.

Dr. Cobb: I’m currently using the double portal technique.

Dr. Mirza: I’m going from distal to proximal. So I think we’re on the same wavelength. And you do exclusively that and not open?

Dr. Cobb: I will occasionally do an open carpal tunnel release, but it’s a very rare event. The last open carpal tunnel release I did on a primary, uncomplicated case was on a patient who came in with a preconceived idea that the open was the standard of care and wanted it done that way. After we did the open on one side the patient decided to do the endoscopic on the other side and was more pleased with the latter. I think the long-term results are the same for either endoscopic or open carpal tunnel release. This is well documented in the literature. However, recovery time is faster and patient satisfaction is higher in the early postoperative period for endoscopic carpal tunnel release.

Dr. Mirza: We know that carpal tunnel is one of the most common orthopedic procedures performed today. The loss of revenue to industry is over 2 billion dollars. In my practice it’s a very common surgical procedure and common ailment that I see, but over the years I see a change in the epidemiology of the carpal tunnel syndrome and a different presentation than the classical description of carpal tunnel in the postmenopausal woman. Dr. Cobb, do you feel that the carpal tunnel problem has stayed the same since Phalen’s description?

Dr. Cobb: No, the population has changed to a younger working class population since the original description, and this is born out fairly well in the literature. To some extent this may be exaggerated by the secondary gain issues that arise in the workman’s compensation environment. It is not uncommon for patients to have mild carpal tunnel-related symptoms that are tolerable and effectively treated with conservative treatment. However, in the workman’s compensation population, they tend to pursue a more aggressive avenue of treatment because of economic issues that are involved.

Ms. Wolff: We don’t see a large worker’s comp population at the hospital. Of the patients that are seen in therapy, which is just a small percentage of those that are operated on, we see both groups: postmenopausal females and the younger, repetitive strain population. From a therapy perspective we’re most effective preventively. If we see these patients early we can provide postural education, workstation modifications and proximal strengthening so as to avoid a full-blown carpal tunnel syndrome from developing.

Dr. Mirza: Right. So generally we all would agree then that there are some epidemiological changes since the earlier description of carpal tunnel, seeing a younger and younger population. Do you feel that this may have something to do with high use of computers, keyboard and mouse, that these people may have increased size of the lumbricals thus increasing pressure within the carpal tunnel? I haven’t seen that in the literature. Any comments on that?

Ms. Wolff: Historically, we used to give patients tendon gliding exer- continued on page 8
cises based on the theory that by gliding the tendons through the tunnel that would prevent some of the scarring or fibrosis. What we’ve found is that the tendon gliding actually pulls the lumbricals proximally into the tunnel and increases the symptoms.

**Dr. Cobb:** We studied that when I was at Mayo. Dr. Berger had described the fist test; he found that when patients make a fist and maintain that position for a period of time, they become symptomatic. We performed two separate laboratory studies. First, we measured the pressure change in cadavers when the digits were brought into flexion; this does increase the pressure in the tunnel. Second, we put radiographic markers on the proximal aspect of the lumbricals and brought the digits from a fully extended to a flex position to determine how much incursion in the tunnel occurs. They do pull into the tunnel which does increase the pressure on the median nerve.

**Dr. Mirza:** Would it be feasible to say that as the evolution proceeds, the tasks that we are asked to do with the hand are somewhat different than our ancestors were doing and that may be the price to pay for human evolution? Another question, what are the most important clinical symptoms?

**Dr. Diao:** In a study that we did with Ed Diao we found that the monofilaments were more sensitive than the 2-point testing for a physical exam, but for a screening test they were not practical. I would say the clinical symptoms are twice as important in making the final diagnosis and particularly the decision to have treatment.

**Ms. Wolff:** Both the monofilaments and the 2-point discrimination test are not particularly helpful in early diagnosis and have not been found to be that sensitive. We don’t use either for diagnostic purposes. However, we often use the monofilaments to determine whether someone is improving from conservative management. We take a baseline at the first visit and compare that on a monthly basis to see if treatment is effective.

**Dr. Mirza:** The other thing I need to add is that, in my practice, I usually do an abduction strength test by allowing the patient to abduct the thumb against resistance.

**Dr. Diao:** I think that some of these other maneuvers are also important in terms of looking at strength and breakaway strength. When

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**AROUND THE TABLE**

Continued from page 7

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**WE CAN PROVIDE POSTURAL EDUCATION, WORKSTATION MODIFICATIONS AND PROXIMAL STRENGTHENING SO AS TO AVOID A FULL BLOWN CARPAL TUNNEL SYNDROME FROM DEVELOPING.**

AVIVA WOLFF, OT, CHT

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**Dr. Cobb:** Nocturnal awakenings in combination with complaints of numbness and tingling in the median nerve distribution. However, many patients do complain of numbness and tingling in the entire hand.

**Dr. Trumble:** I’d agree. When patients tell you that they have to shake their hand to wake it up at night, it is extremely well correlated with the diagnosis. I have never seen a negative electrodiagnostic study or a failure to improve with treatment when they have presented with that finding; the family medicine doctors call this the “flick” test.

**Ms. Wolff:** I agree that nocturnal awakening is an important clinical finding and most bothersome to the patient. Yet, often equally disturbing to the patient is weakness and loss of function.

**Dr. Mirza:** I agree with you that the most common complaint I get is the numbness in the hand, waking up in the middle of the night, shaking and rubbing of the hand. But the other symptoms, the weakness, radiation up the forearm, loss of strength should not be completely ignored. It just makes me more comfortable to make the diagnosis with all of the above. As far as physical findings, what do you think is the most reliable physical finding in your practice?

**Dr. Diao:** In terms of physical findings, I think that there are several tests that, when they are taken together, are strong indicators for the carpal tunnel syndrome. First would be a positive Tinel’s over the median nerve at the wrist. Second, I think a positive Phalen’s is consistent with things that you already talked about, like numbness and tingling, and nocturnal waking. Third, a positive carpal tunnel compression test where some pressure that’s maintained over the distal wrist near the carpal tunnel will reproduce those symptoms. There are some important negative physical exam findings for other diagnoses in the differential.

**Dr. Trumble:** I would agree that those are the tests that are the most effective and efficient to perform: the carpal tunnel compression, the Tinel’s and the Phalen’s. I’ve found that Tinel’s test is very sensitive in the patient with earlier disease when the nerve is still irritable and before it has had late secondary changes from chronic compression. The Phalen’s test is more likely to be positive in the person that tells you they have had symptoms for a number of years and have finally been bothered enough to come into the office. We rarely see patients with atrophy and the muscle weakness or the loss of sensation by the 2-point or monofilament testing. In a study that we did with Ed Diao we found that the monofilaments were more sensitive than the 2-point testing for a physical exam, but for a screening test they were not practical. I would say the clinical symptoms are twice as important in making the final diagnosis and particularly the decision to have treatment.

**Ms. Wolff:** Both the monofilaments and the 2-point discrimination test are not particularly helpful in early diagnosis and have not been found to be that sensitive. We don’t use either for diagnostic purposes. However, we often use the monofilaments to determine whether someone is improving from conservative management. We take a baseline at the first visit and compare that on a monthly basis to see if treatment is effective.

**Dr. Mirza:** The other thing I need to add is that, in my practice, I usually do an abduction strength test by allowing the patient to abduct the thumb against resistance.

**Dr. Diao:** I think that some of these other maneuvers are also important in terms of looking at strength and breakaway strength. When
you position the thumbs. sometimes you certainly get some overlap with people who would have a thumb arthritis of the joints which is a fairly common co-condition, as well as tendonitis. We’ve been talking about the routine pattern, where they’re painful in the beginning and they don’t have much permanent change, and then as time goes on they have a more chronic condition. There are people who fit outside of that pattern who don’t exhibit a lot of pain who eventually come to a practitioner with late findings. And these are the people who sometimes on the first visit already have profound changes in the 2-point discrimination test or very gross thenar muscle atrophy, but seem to have never gone through a very bad period of pain and nocturnal waking prior to that so they never saw a physician until this very late presentation.

Dr. Mirza: Right. We should talk about nerve conduction studies and EMG’s in the diagnosis of carpal tunnel. I wanted to ask Dr. Cobb, how often do you use EMG nerve-conducting studies, and how do you rely on them?

Dr. Cobb: I see quite a few workman’s comp patients and in that population I think that the electrical studies are important for two reasons. One, is they’re required by many of the work comp carriers and it helps ferret out some of these patients who would otherwise have fairly good background and knowledge as to what type of symptoms they should have in combination with secondary gain. In the non-work comp population, and particularly in a patient who presents with very straight forward history and physical findings, I will oftentimes skip the electrical studies after a discussion of the pros and cons thereof.

Dr. Diao: Yes, I tend to agree with Dr. Cobb. I find that I try very hard not to rely on the nerve conduction studies to make my diagnosis because I think even though they’re the best objective measure that we may have, I don’t think they’re great in terms of sensitivity. And I think in particular there are patients who have relatively early disease that don’t necessarily show up on those nerve conduction studies. But I do tend to do them on all patients that I end up doing surgery on. I don’t tend to use the nerve conduction studies so much when I’m just starting a patient on a clinical management course if they’re very characteristic. If they’re not, and if there are other issues, I certainly will use that test to help me localize the problem.

Dr. Trumble: Dr. Diao has hit on a key point. The EMG/NCV is a good predictor of surgical success. The EMG’s are usually only positive late while the conduction latencies are positive earlier. A study was done at the University of Washington using the State Labor Industry patient, which is the name for our Workman’s Compensation Board. They took all the patients treated in a given quarter and found that before EMG/NCV’s were used to confirm the diagnosis, only 60% of the patients after carpal tunnel surgery went back to their job. Once they instituted a state policy that the patients had to have an EMG/NVC, they dramatically increased return to work. So the EMG’s and nerve conduction velocity are probably one of the best predictors of who will respond to surgery. The correlation has been extremely strong. They use the benchmark of a 10% difference between the conduction rate between the median and ulnar nerves as agreed upon by a multi-specialty committee of physicians performing electro diagnostic studies.

Dr. Mirza: Would you ever operate with a negative EMG, or negative nerve conduction studies and your patient has overwhelming symptoms?

Dr. Cobb: If the history and physical findings are typical for carpal tunnel, yes I will operate on them. Frequently I proceed with a cortisone injection in a patient who has atypical findings. If the electrical studies are negative, the history sounds a little atypical, or the physical findings are atypical, I tend to utilize cortisone injections in the decision making process.

Dr. Trumble: That is a very good point, that steroid injections provide a good challenge test for somebody that has been persistently symptomatic. I would have to say that in five or six years, I have not seen a patient with clinical symptoms and who has had a negative nerve conduction study who required surgery. So, perhaps I might try a steroid injection, but it would be an extremely unusual patient. In general, I would not operate if the electro diagnostic studies were negative.

Dr. Mirza: I think the EMG and nerve conduction studies done properly by somebody who knows what they’re doing have value.

Dr. Diao: Yes, I guess my experience differs a little bit. Even though we have very good electro diagnostic testing, I do see some patients who are atypical like the kind described, but I also see some that are very, very typical for carpal tunnel syndrome with all of the positive features and very few of the other features for other diagnosis in the differential. And yet their nerve conduction tests are quite normal. I think the cortisone injection trial is key there and being very sure of the diagnosis of continued on page 10
AROUND THE TABLE
continued from page 9

CTS over a period of time. I mean, these are the people that I wouldn’t move from conservative treatment to surgical treatment unless I’d seen them 5 to 6 times over a course of many months, tried all of the behavioral modifications and so forth. But if they’re positive to a carpal tunnel injection but their nerve conduction is negative and otherwise their story and picture is very typical, I find that the success rate for surgery is high. There is a paper from Journal of Hand Surgery, (I think about fifteen years ago; Greenberg I believe is the author) where out of 33 patients that fit this criteria that then underwent carpal tunnel surgery, 31 or 32 ended up getting excellent result.

Dr. Mirza: There are some studies that have questioned the value of NCV’s.

Dr. Trumble: Well, it’s not backed up by multi-practition-
er studies. As I said, in one occupational medicine study they took all the patients treated in the State of Washington by all physicians for a quarter of a year. They found that when the nerve study was negative the outcome as very unpredictable.

Dr. Mirza: How long will you try conservative management of carpal tunnel syndrome? Dr. Cobb?

Dr. Cobb: It depends on the patient and the presentation. In my prac-
tice, the patients have typically already failed a trial of conservative treatment before I see them. My conservative treatment therefore tends to be short for many of my patients. If I am seeing them for the first time and they haven’t been evaluated, I will skip conservative treatment and go directly to surgery if they have any findings such as thenar atrophy, abnormal 2-point discrimination, or static numbness in the median nerve distribution. For patients with early carpal tunnel and dynamic symptoms, I treat them conservatively. If I inject the patient with cortisone and they have an excellent response, I continue conservative treatment. If they have recurrence of symptoms early on, I then proceed with surgery. If they have a reasonable asymptomatic interval, say 3 to 6 months, and want to repeat the cortisone injection, I will proceed with a second injection.

Dr. Mirza: And the patients who come back and have plateaued, they’re not improving and not getting worse, what would you do with them?

Dr. Cobb: If the patient has no static findings, there is no atrophy, and the overall picture is one of mild carpal tunnel and the symptoms are controlled with nighttime splinting, then I will continue conservative treatment. If the symptoms persist and they don’t resolve, then I proceed with surgical intervention or at least discuss surgery with the patient. I will include a discussion relative to the potential for long-term problems with the nerve if the pressure is left untreated. In my practice, there tends to be two different scenarios for conservative management of carpal tunnel in patients who remains symptomatic. There is the patient who is responding well to conservative treatment who may have intermittent periods of increased symptoms that respond well to splinting and/or cortisone injection. The second scenario is the patient who has learned to tolerate the symptoms and continues to have symptoms despite the conservative treatment. In the latter scenario, I proceed with surgical intervention to prevent potential permanent injury to the median nerve.

Dr. Diao: I think that’s an excellent summary. I think discussion with the patients and having them participate in the decision or treatment is very, very important. I think the cost/benefit of delaying the surgery should be evaluated. Things might get better with conservative treatment over time versus the morbidity, even though it may be small, of the surgery. This needs to be presented to the patient. And those patients who are sort of in between, I think they should have a very strong role in determining how they want to be managed.

Dr. Trumble: I agree with Dr. Diao and Dr. Cobb on the conservative treatment. From our studies, I’ve tried to make a very straightforward treatment algorithm. First, my conservative treatment is basically splinting. The oral anti-inflammatories medications don’t really seem to have much of an impact on this condition. The splints can be very effective for nighttime numbness. I only do the steroid injections when a diagnostic challenge test is needed. When a patient presents, I am very keen on making sure there is an accurate diagnosis. When they present to the office with the suggestive symptoms, I order nerve study conduction right off the bat. If their study is positive and they are waking up at night, I offer them surgery. If they say their symptoms really rarely wake them up at night, I tell them to wear the splints. When they get to the point where it awakens them at night or at some point bothers them on a regular basis, then surgery is indicated. If there are signs of significant nerve compression with positive physical findings or an EMG showing fibrillation potentials of the abductor pollicis brevis, I urge
those to have surgery earlier even if their symptoms are mild so as to avoid permanent weakness.

**Ms. Wolff:** Splinting may help in some situations, and particularly with dynamic symptoms. However, more important than splinting is education in postural adaptation and work-station modification. Often if you address the upper body, the neck, the back, and shoulders, the distal symptoms improve. Patients should report improvement after several sessions. If there is no improvement they are referred back to the surgeon to explore other options. I have not had success treating carpal tunnel syndrome with modalities, splinting or tendon and nerve gliding. With the shoulder girdle, latissimus, and trapezius strengthening and proximal stretches, I have been more successful. This is because you are lengthening shortened tissue, and strengthening weak (lengthened) muscles. People who sit at their desks or their computers for long periods of time develop a forward head posture with rounded shoulders. That places traction on the cervical nerves, and sets up the distal nerves for compression, somewhat analogous to double crush syndrome.

**Dr. Mirza:** If the cortisone injection is used, how often will you use it, at what intervals or how many times before you go on to surgical options?

**Dr. Cobb:** I trained with David Green, who uses cortisone injections extensively and has published a study which demonstrated a correlation between patients who have successful outcomes with surgery and those who have a favorable response to cortisone injection. I find cortisone injections helpful both diagnostically and therapeutically. Many patients don’t like or want cortisone injections. I have found that some of my patients have gone to see other surgeons to have their carpal tun-
nels released because they did not want a cortisone injection. I typically advise patients that the relief from cortisone injections does tend to be temporary. I tend to use cortisone less frequently now. Nevertheless, the majority of patients with carpal tunnel syndrome will have a dramatic improvement in symptoms following a cortisone injection.

Another group of patients that we haven’t talked about that I do utilize cortisone injections routinely are those who present with carpal tunnel syndrome and need to put the surgery off to a more convenient time. This often occurs in our geographic area during the summer months when farmers are in the field. I do not utilize cortisone in this setting in patients who have advanced carpal tunnel with static symptoms and thenar atrophy.

Dr. Diao: I think that the cortisone injection can be useful. I’ll tend to do one and then offer a repeat injection if the initial injection was beneficial. And I’ll try to do one or two or three injections once a month. Dr. Cobb mentioned some patients who have a schedule problem. To that group I would add the peri-partum women, and actually some who aren’t the mothers but are the child care takers, during that period of carrying the child and after the child’s born through six months having to control the baby’s head. That’s provocative for creating De Quervain’s and also carpal tunnel syndrome.

Dr. Mirza: Dr. Trumble?

Dr. Trumble: I probably use it less than the other two surgeons. I really only used it for the rare patient who has severe symptoms, but cannot schedule surgery. Maybe it is a regional difference, but in Seattle, people are not that keen on steroid injections. I use...
the injection for the patient who truly has the conflict scheduling surgery. Actually, more commonly, I use it in recurrent carpal tunnel to decide whether someone should have a revision carpal tunnel release and when the electro diagnostics are just very difficult to interpret. Gelber and Szabo have shown that the effects really predictably wear off within nine to twelve months.

Dr. Mirza: I tend to agree with you; I use cortisone injection rather sparingly. I give them the option, after explaining, in detail, the pros and cons of cortisone injection, including damage to the median nerve.

If symptoms are persistent more than 3 years, Dr. Cobb, would you still try conservative management?

Dr. Cobb: Again, it depends on the scenario. If the electro studies are negative and physical findings are somewhat atypical and suggest more proximal sites of pathology such as thoracic outlet syndrome, then absolutely I would stay with conservative treatment. In a clear-cut carpal tunnel with persistent symptoms for a three-year period, I would tend to move on to surgical treatment.

Dr. Diao: I think if the symptomatology is quite mild that even though they may have a solitary diagnosis if they’re not too troubled by their symptoms, I continue conservative treatment. I certainly am concerned about more severe cases where the idea of having nerve changes that may be less reversible, and I would push those people towards surgery. The people who present with multiple diagnoses and you’re trying to work out some of these other issues, such as elbow tendonitis, paracervical problems, thoracic outlet syndrome and carpal tunnel syndrome clinically and/or by nerve conduction velocity, I would still be comfortable with conservative treatment.

Dr. Mirza: Then let me ask you the question the other way around. If the symptoms go beyond 3 years, would you be concerned about permanent damage to the median nerve?

Dr. Diao: Yes, once you’re concerned about the severity, I think there are two factors: one is the amount of compression and the other factor is time. One week of very severe carpal tunnel pressure may be far worse. We can infer that the longer somebody has it the worse it is, but we’re not talking at all about the severity of the pressure and what’s happening to the nerve itself.

Dr. Trumble: If patients have made the effort to come in and see you in your office, they generally have had a pretty significant problem. As I mentioned earlier, once the patient’s nerve study tests are positive and the history is positive, the longest I would ask somebody to try night splints is a month.

Dr. Mirza: I agree with you. How about thenar atrophy? If it is present, would you still consider conservative management?

Dr. Diao: I’d say in 100% of the time, if somebody has thenar atrophy, I inform them that they’ve had significant damage to their nerve and if they plan on living for a while more and they want their quality of life to be a bit better, then I will always offer them the carpal tunnel release. I think there’s a second part of that question: once there is thenar atrophy, do we know how quickly or how completely the thenar atrophy will reverse itself? We don’t. I find in most cases of severe thenar atrophy, the patient never gets 100% of their bulk to return. They do over a long period of time, more than a year, tend to get back at least some of that function.

Dr. Trumble: To combine the two questions, one was about severe atrophy and the other severe numbness: I think whether it was motor atrophy or sensory loss, we would be quite concerned in today’s office setting. In the study that we did with one-year follow-up in a prospective, randomized study, there were not many people with significant atrophy, and no patient had significant findings of weakness or sensory loss regardless of their presentation.

Dr. Mirza: Would you reach the same opinion when the patient walks in with a 20 mm 2-point discrimination?

Dr. Cobb: No, at that point, I would move on to surgical intervention.

Dr. Trumble: As I said in our analysis when we looked at patients that came into a study, we saw no patients with severe sensory loss, out of over 190 hands. If you were talking about the person that just has a 6 mm 2-point compared to four in the other digits, I would still be quite concerned and would urge the patient to have surgery.

Dr. Mirza: I see that in my practice, not very often, patients with 2-point discrimination of 10 to 20 mm. Sometimes these patients are reluctant to have surgery at this point.

Dr. Trumble: Well, they don’t hurt any longer.

Dr. Mirza: If you decided to do the surgery, how would you discuss the various surgical options?

Dr. Cobb: I perform primarily endoscopic releases in my practice. I discuss the anatomy with the patient, the differences between the approach in endoscopic versus open and define the

THANKFULLY, WITH THE EFFORTS THAT WE HAVE BEEN MAKING TO CAREFULLY Diagnose and TO CAREFULLY TREAT, I THINK OUR Need FOR DOING Revision Surgery IS BECOMING Exceedingly RARE.

THOMAS TRUMBLE, MD
benefits of endoscopic being a smaller incision and a faster recovery with the end result being the same.

**Dr. Mirza:** Dr. Diao, what is your approach?

**Dr. Diao:** The same. I discuss with them the essential anatomy which is dealt with by both open and endoscopic approaches. I tell them that the end result is probably the same with both, and I think that there is some benefits to short-term improvement in function and pain relief with endoscopic.

**Dr. Trumble:** I would echo what Dr. Diao said that I've been biased by the results of the randomized prospective study. I thought the data would come out differently, but it really came out quite heavily in favor of the endoscopic surgery. In Oxford, they did another study that was even more dramatic. In their situation, patients with bilateral symptoms want to have bilateral surgery because it takes so long to come back and see the doctor for the contra-lateral side. They found a preference for endoscopic surgery. Therefore, I offer endoscopic surgery as the primary treatment for symptomatic CTS.

**Dr. Mirza:** What do you feel is the role of physical therapy post-operatively, Ms. Wolff?

**Ms. Wolff:** Generally, we do not see carpal tunnel releases post-operatively unless there are complications. If there are complications, the treatment would address the complications: scar management, desensitization, and edema control.

**Dr. Mirza:** Dr. Cobb, would you make any comment on physical therapy?

**Dr. Cobb:** I would agree with Mrs. Wolff. Although I think physical therapy is important in the post-operative care of carpal tunnel patients, this therapy is very simple and can be performed by the patient without formal intervention by a therapist. Preoperatively, I simply teach the patients stretching, range of motion exercises and edema control. On the first post-operative visit, we discuss scar desensitization and again review range of motion exercises. Later they are instructed relative to strengthening and return to activity. Patients who have difficulty with range of motion or scar sensitivity are sent for physical therapy, but this is very uncommon.

**Dr. Trumble:** We looked at the effect of therapy post-operatively and we found out that it didn’t impact the long-term outcome. However, there was a marked increase in patient satisfaction with a single visit.

**Dr. Mirza:** If a patient presents with a burning pain, would you request the pain management evaluation pre-operatively?

**Dr. Cobb:** I rarely get a pain management evaluation preoperatively in a patient that has carpal tunnel syndrome. If the patient has atypical symptoms, I will frequently utilize a cortisone injection preoperatively. In a recent publication and in my own experience, some patients who have carpal tunnel and what appears to be an early RSD will respond favorably to carpal tunnel release. Therefore, if the patient clearly has carpal tunnel and some early findings of RSD, I would proceed with a carpal tunnel release and initiate formal therapy in the early postoperative period. In my experience, most of these patients respond favorably to this treatment and do not require a formal pain management evaluation. However, if the symptoms persist postoperatively, I would proceed with pain management evaluation at that time.

**Dr. Diao:** Pre-operatively, if a patient presents with a burning
pain you have to make a diagnosis; either the patient has what we’re talking about, carpal tunnel syndrome with all the signs and symptoms associated and just has a very significant response to that, or there may be something else going on. I think, in that case, I generally don’t send patients for a pain evaluation pre-op but I’m usually trying to evaluate the patient myself for other diagnostic possibilities. Unfortunately, the nerve tests are not that helpful for this. I’ll tend to repeat the exams and send the patient to therapy pre-op because there may be some other symptoms that I can’t quite put my hands on. I certainly would use medications to try to improve what’s going on with the patient because I would be concerned that it might be something going on that my carpal tunnel release is not going to fully control.

Dr. Trumble: We did not find in our study that there was any predictive findings that would help you identify the patient who would get RSD. We found that none of the patients with endoscopic treatment developed RSD, whereas 2% of the open technique did. Now the opposite has been true with the patients that have been referred to us from the pain clinic with CTS. In those patients we have worked with them to have them on tri-cyclic antidepressant or Neurontin prior to surgery.

Dr. Mirza: How do you manage your post-op RSD patient, Dr. Trumble?

Dr. Trumble: Well again, fortunately we don’t get them anymore, in all honesty. If somebody presents and they have burning pain post-operatively, I would be really concerned that they might have a nerve injury and do a very thorough neurologic examination. From time to time, I review cases for predominantly medical defense, and I have noticed that when there has been a significant

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**Christine R. Blake, OTR/L, CHT (“Chris”)**

**Personal:** I was born to British parents in a small town, Ilkley, Yorkshire, England. My father, a physician desiring to escape socialized medicine in England, brought my mother, sister (4) and me to the United States when I was 2 years old. I was brought up in Virginia, but for the past 24 years have lived in South Carolina. From the time I was 16, I knew that I wanted to be an Occupational Therapist and only a year or two after graduation in therapy from the Medical College of Virginia, I fell in love with rehabilitation of the hand. I credit Dr. Wyndell Merritt with introducing me to the field of hand therapy. Without his influence and encouragement, I may not have devoted my professional life to this wonderful specialty. I have worked primarily in the United States, but also in Germany, where the most challenging part of my job was to communicate with patients in German only! I have instructed hand therapy courses at the Medical University of South Carolina and lectured in other locations. I currently live in Mount Pleasant, South Carolina (across the bridge from Charleston!), with my husband, and have two beautiful daughters, 25 and 23… and two faithful, very large dogs. During my spare time, I am primarily involved in church, tennis, running, bridge, art, and with my family and friends.

**Education:** Bachelor of Science in Occupational Therapy, Medical College of Virginia, 1973

**Employer:** Carolina Hand Therapy, Inc., with two offices: one in Mount Pleasant, South Carolina and one in Charleston, South Carolina. Privately owned by Chris Blake, OTR/L, CHT, and Elizabeth deHerder, OTR/L, CHT.

**AAHS Involvement:** AAHS Involvement- None, to date. New member this year.

**Best Part of My Job:** So much about my job is wonderful, but the excitement and smiles with every patients’ success, are priceless.

**Major Accomplishments:** Raising my daughters; President ASHT 2003; co-owning and managing an independent hand therapy practice.

**Clinical Specialties:** Hand Therapy

**Greatest Challenge:** It’s difficult to choose only one. Probably starting my own business in today’s medical climate. Also, to stay current and on the cutting edge of our profession. Non-professionally, my latest challenge is running a marathon.

**Three Words That Describe Me:** Determined, caring, dependable.
A third group of patients that I infrequently see are those in the workman’s comp setting who continue to complain of symptoms which are related to secondary gain. If the symptoms and physical findings are carefully documented on each and every evaluation and patients are seen frequently in the postoperative period, one will note variation in complaints that frequently do not follow the median nerve distribution. These symptoms resolve after closure of the case and all financial settlement has occurred.

Dr. Mirza: Would you consider the diagnosis of pronator teres syndrome in those cases? Dr. Cobb?

Dr. Cobb: I certainly consider it; it’s not something I see frequently.

Dr. Trumble: If you have done the surgery or you know the surgeon who has done the surgery and it’s been done well, I would wait a year before repeating nerve study tests, especially if the nighttime symptoms have resolved. Our studies showed that people make consistent sensory improvement for three months. It was interesting that they actually made improvement on objective tests even though they did not recognize it. I always get an electrodiagnostic study test on patients in order to have an objective method to evaluate the response to surgery, particularly in the workman’s compensation venue. You can show them that there has been objective evidence that they have improved even if it is not completely resolved, and then you can be really confident and tell them no more treatment is necessary. There are no other therapeutic options; you should get on with life and live with the symptoms of the parameters that you have.

Let’s suppose that at a year out from CTR, a patient has recurrent or persistent symptoms and their EMG/Nerve Conduction Velocity test shows that they are as bad as they were before surgery or worse and/or they respond to a steroid injection. In this case, I recommend revision surgery. Thankfully, with the efforts that we have been making to carefully diagnose and to carefully treat, I think our need for doing revision surgery is becoming exceedingly rare.

Dr. Cobb: I agree.

Dr. Diao: Dr. Diao, do you have anything to add to that?

Dr. Trumble: Yes. I agree with what Dr. Trumble said. The incidents of having to do revision surgery on my own patients, I haven’t had to do that for at least five years or more. I do think that it’s for the occasional patient who has an atypical course that I’m happy to have gotten that pre-operative nerve conduction EMG test. As far as I’m concerned there are no real good studies on the efficacy of revision carpal tunnel release surgery, and figuring out the indications for it is difficult. Even with MRI’s and repeat nerve conduction studies it’s very hard to predict to a particular patient how much improvement they may or may not get with the revision.

Dr. Mirza: Ms. Wolff, do you have anything to add to that?

Ms. Wolff: Just that I haven’t found therapy to be particularly effective in alleviating symptoms that persist post-surgery.

Dr. Mirza: Everyone, it’s been a pleasure talking to you; you are an immensely knowledgeable group.
Coding for Carpal Tunnel Surgery

This issue of the Coding Corner deals with carpal tunnel syndrome. We will also review a few procedures that are sometimes performed in combination with carpal tunnel release. Remember that for any additional codes that represent add-on procedures to carpal tunnel surgery, the modifier “–51” should be used.

The CPT category that corresponds to carpal tunnel release is called “neuroplasty,” which refers to the decompression or freeing of intact nerve from scar tissue. This includes an external neurolysis and/or transposition. The code for an open (or mini-open) carpal tunnel release is 64721, which corresponds to neuroplasty of the median nerve at the carpal tunnel.

If the procedure is performed endoscopically, then code 29848 applies. The descriptor for 29848 is “endoscopy, wrist, with release of the transverse carpal ligament.”

Some additional procedures are occasionally indicated for patients undergoing a carpal tunnel release. Sometimes an opponensplasty tendon transfer may be warranted if the patient has good thumb passive mobility but limited active opposition due to severe thenar atrophy. If a superficialis opponensplasty were performed, then code 26490 would be used as an add-on. Codes 26492, 26494, and 26496 correspond to tendon transfers with a free graft, hypothenar muscle transfer, and opponensplasties performed via other methods, respectively. If a donor tendon were chosen from the wrist or forearm level, such as the palmaris longus, then code 25310 (tendon transplantation or transfer, flexor or extensor, forearm and/or wrist, single, each tendon) would be appropriate. If the forearm or wrist donor tendon is used with a tendon graft, then code 25312 is the correct add-on code.

For patients with inflammatory arthritis, it may be indicated to combine a carpal tunnel release with a flexor tenosynovectomy. The appropriate code here would be 25115, which describes radical excision of bursa or synovia of the wrist on the flexor side.

You Code It

A 65-year-old woman with a history of rheumatoid arthritis needs a carpal tunnel release. She also has severe thenar wasting and you decide to also perform a superficialis opponensplasty. The procedure is an open carpal tunnel release, flexor tenosynovectomy, and ring superficialis tendon transfer.

Solution:

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>64721</td>
<td>Open carpal tunnel release</td>
</tr>
<tr>
<td>25115-51</td>
<td>Radical excision, flexor synovia</td>
</tr>
<tr>
<td>24690-51</td>
<td>Opponensplasty, superficialis</td>
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**Carpal Tunnel Release and Associated Procedures**

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<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tr>
<td>64721</td>
<td>Neuroplasty of the median nerve at the carpal tunnel</td>
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<tr>
<td>29848</td>
<td>Endoscopy, wrist, surgical, with release of the transverse carpal ligament</td>
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<td>26490</td>
<td>Opponensplasty, superficialis tendon, without free tendon graft, each tendon</td>
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<tr>
<td>26492</td>
<td>Opponensplasty, with free tendon graft (includes obtaining graft), each tendon</td>
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<td>26494</td>
<td>Opponensplasty, hypothenar muscle transfer</td>
</tr>
<tr>
<td>26496</td>
<td>Opponensplasty, other methods</td>
</tr>
<tr>
<td>25310</td>
<td>Tendon transplantation or transfer, flexor or extensor, forearm and/or wrist, single, each tendon</td>
</tr>
<tr>
<td>25312</td>
<td>Tendon transplantation or transfer, flexor or extensor, forearm and/or wrist, single, with obtaining tendon graft(s) (includes obtaining graft), each tendon</td>
</tr>
<tr>
<td>25115</td>
<td>Radical excision of bursa, synovia, wrist, flexors</td>
</tr>
</tbody>
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**LEON S. BENSON, MD**
I just went to the 2004 TEPR (Towards Electronic Patient Records) trade show, which was both inspiring and depressing. The conference is geared for vendors, not physicians. There were cool demos of the latest technologies relating to electronic medical communications. The first sad part was that everyone is trying to invent the wheel of electronic medical records, competing, not collaborating. The one exception was the Open Infrastructure for Outcomes project (www.TxOutcome.org), a free open source project. The second depressing bit was the inadequacy of hand-specific records, for example, templates summarizing “hand range of motion” as either “normal” or “abnormal”, which works for billing and HCFA, but not for patient care. Finally, I was hoping to find the answer to the common question “what program do you use to organize your patient images?”, but found no realistic solution. Despite that, there were some very interesting products profiled. Many were large scale, geared for hospitals. Many of the small practice scale systems were geared for medical practices, strong in handling prescriptions, and lab tests and phone calls. Fortunately, there were a variety of other products which may actually show up in your office:

**Portable Personal Medical History Hardware**

A few weeks ago, when my front desk told a patient that we’d have to request copies of their medical records, they pulled out and waved what looked like a credit card, explaining “I have my medical records right here!”. What they had was a credit card sized **smart card** holding their records in its memory. Nice. It would have been even nicer if my office had a **reader** for the card. So, we... had to request copies of their medical records.

Introducing proprietary technology takes us one step further away from universal medical records. An alternative hardware solution is to use more computer-friendly external memory devices with embedded medical history software such as CapMed’s Disk-on-Key Personal Health Record (www.capmed.com) or San Disk (www.sandisk.com) products geared to provide a Continuity of Care Record (CCR).

**Web Based Medical Records**

This approach makes more sense in many ways. The ideal system would provide medical record access for any appropriate provider through the internet. Many systems are now available which store medical information on a web server, but until a standard record format is available, these remain proprietary, competing solutions.

**Total Practice Management**

A number of systems have been developed to offer total medical practice management – billing, scheduling, electronic medical records, work flow management, lab paperwork, prescriptions and more—a “turnkey” system. There are many advantages to these, and there is quite a bit to choose from. I was impressed by products offered by Bizmatics (www.bizmaticsinc.com) and Complete Medical Systems (www.docfornetwork.com).

**Help sorting out your options.**

The most important issues in choosing new hardware and software for your practice is finding the right product at the right price. Right now, the playing field is worse than confusing. Because of lack of standardization, the industry is perfectly poised to take advantage the average physician’s ignorance by provide inappropriate.
products and grossly overcharging for services. Entry level fees for some medical practice software systems are tens of thousands of dollars, with hidden fees in the form of annual service fees, “training” fees, third party compatibility fees, data conversion fees, and others which may come close to doubling the sticker price. Even with expensive systems, there’s no guarantee that the system will actually do what you want it to, especially in terms of electronic medical records. Converting to EMR can take months, disrupt the safety of your routine and impose crushing unexpected financial burdens.

What do you do? Consider a consultant group, such as AC Group (www.acgroup.org) or EMR Consultant (www.emrconsultant.com) to help you weed through products and find the best “fit” for your practice. Consider a product which is implemented in stages, such as the AIC “Incremental EMR” (www.aicsoft.com). The best starting point to compare EMR products is www.elmr.com—an independent, free service, comparing over 60 competitors on one page.

What’s still missing from this picture?

Hand surgery documentation systems. The problem is that hands and their problems are complex, and do not lend themselves to database-style organization. I need something simple, cheap, flexible, and, most importantly, an approach which won’t slow me down or materially change my routine. Solutions?

Dictation
This is the most flexible option. There are two new technology twists on dictation: web-based medical transcription and electronic speech recognition. ZyDoc (www.zydoc.com) offers excellent products along both lines. The problem I’ve always had with dictation is lack of immediacy—what’s discussed in the exam room doesn’t automatically accompany the patient to the check out desk.

Pen Input
The consultant writing notes during an interview is a familiar, comfortable, and functional model. The obvious equivalent solution is to write notes on a tablet, input rendered immediately as printed text, using technology which is both available and affordable. Well, not yet, not for me—I’ve been testing and using pen systems for years, and none of the handwriting recognition systems even at TEPR let me do what I wanted without struggling and eventually resorting to some sort of keyboard input.

Template Based Forms
These forms have the unique advantage of standardizing input and automatically integrating record keeping with relevant reference standards such as ICD, CPT, and clinical classification schemes. I’ve worked to develop hand surgery forms for years, with two tiny goals:
1. Being able to easily choose from a template a complex sentence such as, “There is a five by eight millimeter lobular, bluish, rubbery, nontender mass on the distal dorsal radial aspect of the index finger proximal interphalangeal joint.” This can be done using a pure point and click one page form (see www.e-hand.com\nmmap\locator.htm), but there’s no way that the entry speed for this can compare with dictating, and I don’t think that this is ultimately a viable approach for our specialty.
2. Letting the patient do their own hand specific medical history on line, answering the questions that I want to ask. This also can be done (see www.e-hand.com\new3\newhx.htm), and I think that this shows great promise for forms in a specific situation.

The biggest problem with templates is lack of flexibility. The second biggest problem with template driven medical records is the great tendency to produce generic, unreadable, useless, filler quality verbiage. Unacceptable.

Combo Systems
ZyDoc (www.zydoc.com) demonstrated an innovative approach: a template based system with integrated voice recognition so that you fill in the critical details with your own words rather than being forced to choose something ridiculously generic such as “Patient reports: Moderate skin autonomic symptoms” (a direct quote from a standard template EMR report from a different system). The reliability of ease of templates, the ease of dictation, the immediacy of computer entry - I believe that this is the current best hope for electronic hand surgery records, but it will still take a bit of work to flesh out useful hand surgery templates.

We’re getting there, but slowly, slowly. Next issue: How do you manage all of those image files?
American Association for Hand Surgery Calendar

2004

July 9–11, 2004
Mid-Year Board of Directors’ Meeting
St. Regis Monarch Beach Resort
Dana Point, CA

September 9–11, 2004
American Society for Surgery of the Hand – 59th Annual Meeting
New York, NY

2005

January 12–15, 2005
35th Annual Meeting
Sanibel Harbor Resort
Sanibel Island, FL

July 15–17, 2005
Mid-Year Board of Directors’ Meeting
The Lodge & Spa at Cordillera Edwards, CO

2006

September 22-24, 2005
American Society for Surgery of the Hand – 60th Annual Meeting
San Antonio, TX

2007

January 10–13, 2007
37th Annual Meeting
The Westin Rio Mar Beach Resort
Rio Grande, Puerto Rico

2008

January 9–12, 2008
38th Annual Meeting
The Westin Century Plaza Hotel & Spa
Beverly Hills, CA

For information contact:
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www.handsurgery.org

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