

# Trends in Carpal Tunnel Surgery: An Online Survey of Members of the American Society for Surgery of the Hand

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**Purpose** To investigate the current treatment patterns of carpal tunnel surgery by members of the American Society of Surgeons of the Hand today and to assess how several elements of practice vary by surgeon location and experience.

**Methods** An online survey consisting of 10 questions was sent electronically to members of the American Society of Surgeons of the Hand (N = 2,413). A brief description of the study and a link were sent to participants by the investigators. Results were anonymously uploaded to an online spreadsheet.

**Results** 716 hand surgeons (30%) responded to the survey. Surgeons were nearly equally represented by region. A wide variation in surgeon experience was observed. A majority (65%) performed most of their surgery at an outpatient surgical center. Preoperative electrodiagnostic testing was used, at least occasionally, by 90% of surgeons. Approximately one-half did not administer preoperative antibiotics at the time of surgery. Intravenous sedation with local anesthesia was the most common practice (43%), followed by Bier block (18%). A mini-open incision was most commonly used (50%). A minority reported using an orthosis postoperatively (29%), and they rarely prescribed a course of postoperative therapy (12%). Postoperative pain management was variable, with hydrocodone and derivatives given most commonly (61%). International practitioners were much less likely to operate in an outpatient surgical center (45%) or use antibiotics (13%). Younger surgeons were more likely to use electrodiagnostic testing (96%) compared with the mean (90%).

**Conclusions** When compared with several previous similar studies, we noted a trend toward increased use of electrodiagnostic testing and decreased use of postoperative therapy and immobilization. (*J Hand Surg Am.* 2015;40(4):767–771. Copyright © 2015 by the American Society for Surgery of the Hand. All rights reserved.)

**Type of study/level of evidence** Economic and decision analysis V.

**Key words** Carpal tunnel syndrome, antibiotics, electrodiagnostics, postoperative therapy, pain management.



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CARPAL TUNNEL SYNDROME REPRESENTS the most common compression neuropathy affecting the upper extremity, and more than 200,000 carpal tunnel releases are performed annually in the United States.<sup>1,2</sup> Despite its prevalence, there is no clear consensus on several elements of surgical practice, including preoperative testing, surgical approach, and postoperative management.<sup>3–5</sup> In 1987, Duncan et al published the results of a survey sent to members of the American Society of Surgeons of the Hand

(ASSH) to identify their treatment practices.<sup>6</sup> A few changes in the treatment of carpal tunnel surgery have occurred since then, such as endoscopic technique and mini-incision, and with those the common treatment practices also have changed. The purpose of our study was to investigate the current treatment patterns of carpal tunnel surgery by members of the ASSH today and to assess how several elements of practice vary by surgeon location and experience.

## MATERIALS AND METHODS

An on-line survey consisting of 10 questions was created and sent to members of ASSH. Permission was granted by the ASSH Web Site Committee to distribute the survey to members using the electronic mailing list. Active, candidate, and international practicing members of the ASSH (N = 2413) were invited to complete the online survey. In total, 15% of ASSH members practice internationally. ASSH did not provide e-mail addresses for lifetime members. Because the survey focused on several elements of surgical management, hand therapists were excluded from participation. A brief description of the study and a link to obtain the study via a pop-up window were sent to participants. Results of the survey were anonymously uploaded to an online spreadsheet that allowed for tabulation of results (via Google Drive; Mountain View, CA), though participants were not granted access to results. Members were given 3 months to respond to the survey. This study was exempt from institutional review board approval at our institution.

The 10-question survey aimed to assess critical elements in surgeons' evaluation and treatment of carpal tunnel syndrome, and to capture key demographic information about the respondents. Demographic information included the surgeon's region of practice (self-reported as either Northeast, South, Midwest, West, or abroad), years in practice, and most common surgical setting. Other questions assessed the use of electrodiagnostic testing, preferred surgical approach, type of anesthesia used, and antibiotic usage. Post-operative management was assessed with questions covering use of postoperative orthosis, therapy, and preferred pain treatment regimen. Estimated completion time of the survey was one minute. No additional follow-up inquiries were sent to participants.

Analysis of results was performed in 2 stages. First, respondents' answers to the full 10-question survey were tabulated as a whole using Microsoft Excel, with these results compared directly to percentages obtained from previous surveys (where applicable). Next, the

**TABLE 1. Demographics (%)**

<i>Region of Practice</i>	
South	24
Midwest	23
West	22
Northeast	20
International	11
<i>Years in Practice</i>	
Fewer than 3	10
3–10	23
11–20	32
21–30	26
More than 30	9
<i>Surgical setting</i>	
Outpatient facility	65
Community hospital	16
University	15
Office	2
Other	2

results were stratified by demographic subgroup, including the respondent's region of practice, years of experience, and type of practice. This analysis was performed in order to assess differences in practice when each group was divided.

## RESULTS

Seven hundred sixteen surgeons (30% of those solicited) responded to the survey. Incomplete question responses were excluded from analysis. Surgeons were nearly equally represented by U.S. region, and 11% were practicing abroad (Table 1). The largest representation of surgeons was in their 11th to 20th years of practice with the smallest representation in those with fewer than 3 years of experience and more than 30 years (Table 1). A majority of respondents performed most of their carpal tunnel surgery at an outpatient surgical center (Table 1; full data with questions included in Appendix A, available on the *Journal's* Web site at [www.jhandsurg.org](http://www.jhandsurg.org)).

Preoperative electrodiagnostic testing (EMG and nerve conduction studies) were used, at least occasionally, by 90% of surgeons. Approximately one-half of respondents (49%) did not provide preoperative antibiotics at the time of surgery, with the remainder prescribing antibiotics at least a portion of the time. For sedation, intravenous sedation with local anesthesia was the most common practice, followed by use of a Bier block. For the incision, a mini-open incision was most commonly used (Table 2).

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