

Peer Review and Public Comment Responses

**Evidence-Based Clinical Practice Guideline on the
Management of Carpal Tunnel Syndrome**

Table of Contents

Summary of Changes to Guideline Draft.....	3
Overview of Peer Review and Public Commentary	4
Peer Reviewer Key	5
Table 1. Peer Reviewer Key.....	5
Peer Reviewer Demographics.....	6
Peer Reviewers' Disclosure Information.....	7
Table 2. Disclosure Question Key	7
Table 3. Peer Reviewer's Disclosure Information	8
Table 4. Peer Reviewer Detailed Disclosure Information	10
Peer Reviewer Responses to Structured Peer Review Form Questions	11
Table 5. Peer Reviewer Responses to Structured Peer Review Questions 1-4.....	11
Table 6. Peer Reviewer Responses to Structured Peer Review Questions 5-8.....	12
Table 7. Peer Reviewer Responses to Structured Peer Review Questions 9-12	13
Table 8. Peer Reviewer Responses to Structured Peer Review Questions 13-16.....	14
Peer Reviewers' Recommendation for Use of this Guideline in Clinical Practice	15
Would you recommend these guidelines for use in clinical practice?	15
Peer Reviewer Detailed Responses	16
Reviewer #1, Mark I. Ellen, MD; Richard D. Zorowitz, MD – American Academy of Physical Medicine and Rehabilitation (AAPM&R).....	16
Reviewer #2, Umar Choudry, MD, FACS; Karol A Gutowski, MD; Gary R Culbertson, MD, FACS; Ash Patel, MBChB, FACS - American Society of Plastic Surgeons (ASPS)	19
Reviewer #3, Warren C. Hammert, MD - American Association for Hand Surgery (AAHS).....	23
Reviewer #4, American Society of Hand Therapists (ASHT) Research Committee	25
Reviewer #5, Tamara Pringsheim, MD, MSc - American Academy of Neurology (AAN).....	32
Reviewer #6, Benn Smith, MD, FAAN, FANA - American Association of Neuromuscular and Electrodiagnostic Medicine (AANEM)	34
Reviewer #7, Noah Matthew Raizman, MD - American Society for Surgery of the Hand (ASSH)	39
Public Comment Submissions.....	45
Public Comment Responses to Structured Public Comment Form Questions	46
Table 9. Peer Reviewer Responses to Structured Peer Review Questions 1-4.....	46

Table 10. Peer Reviewer Responses to Structured Peer Review Questions 5-8	46
Table 11. Peer Reviewer Responses to Structured Peer Review Questions 9-12.....	47
Table 12. Peer Reviewer Responses to Structured Peer Review Questions 13-16	47
Table 13. Public Commenter’s Recommendation for Use of this Guideline in Clinical Practice	47
Public Commenter Detailed Responses	48
Submitter #2, David Ring, MD, PhD.....	48
Submitter #3, Steven Henry, MD	49
Appendix A – Structured Peer Review/Public Comment Form.....	50

Management of Carpal Tunnel Syndrome Evidence-Based Guideline

Summary of Changes to Guideline Draft

1. All grammar/punctuation issues submitted by reviewers have been corrected:
2. Quality charts updated
 - Manente 2001
 - Hall 2013
 - Bakhtiary 2004
 - Evcik 2007
 - Fusakul 2014
 - Soyupek 2012
 - Yildiz 2011
3. Added outpatient setting to Intended Users section.
4. Funding source has been added to page 2.
5. The following definition of carpal tunnel syndrome has been added to the introduction section: “For the purpose of this guideline, Carpal Tunnel Syndrome (CTS) is defined as follows: Carpal Tunnel Syndrome is a symptomatic compression neuropathy of the median nerve at the level of the wrist, characterized physiologically by evidence of increased pressure within the carpal tunnel and decreased function of the nerve at that level. Carpal Tunnel Syndrome can be caused by many different diseases, conditions and events. It is characterized by patients as producing numbness, tingling, hand and arm pain and muscle dysfunction. The disorder is not restricted by age, gender, ethnicity, or occupation and is associated with or caused by systemic disease and local mechanical and disease factors.”
6. Added the following language to the Future Research section of the Preoperative Antibiotics recommendation: “Future research should also focus on the efficacy of preoperative antibiotic treatment in diabetics and/or other immunocompromised populations.”
7. Revised any mention of tendinopathies or tendonitis to “tendinopathies/tendonitis”.

Overview of Peer Review and Public Commentary

The reviews and comments related to this clinical practice guideline are reprinted in this document and posted on the AAOS website. All peer reviewers and public commenters are required to disclose their conflict of interests. Names are removed from the forms of reviewers who requested that they remain anonymous; however their COI disclosures still accompany their response.

Peer Review

AAOS contacted 18 organizations with content expertise to review a draft of the clinical practice guideline during the peer review period from September 8th, 2015 to October 8th, 2015.

- Eleven individuals provided comments via the electronic structured peer review form, representing seven professional medical organizations. Review responses from individuals representing the same organizations were aggregated into one response and their agreement/recommendation scores were averaged.
- No reviewers asked to remain anonymous.
- The work group considered all comments and made modifications only when they were consistent with the evidence.

Public Comment

The new draft was then circulated for a 30-day public comment period ending in January 18th, 2016.

- AAOS received three comments including one representing specialty societies, and two from individuals.
- If warranted and based on evidence, the guideline draft is modified by the work group members in response to the public comments.

Peer Reviewer Key

Each peer reviewer was assigned a number (see below). All responses in this document are listed by the assigned peer reviewer's number.

Table 1. Peer Reviewer Key

Reviewer Number	Name of Reviewer (Required)	What is the name of the society that you are representing?
1	Mark I. Ellen, MD; Richard D. Zorowitz, MD	American Academy of Physical Medicine and Rehabilitation (AAPMR)
2	Umar Choudry, MD, FACS; Karol A Gutowski, MD; Gary R Culbertson, MD, FACS; Ash Patel, MBChB, FACS	American Society of Plastic Surgeons (ASPS)
3	Warren C. Hammert, MD	American Association for Hand Surgery (AAHS)
4	Ann Lucado, PT, PhD (representing ASHT research committee including Marsha Lawrence PT CHT, Diane Coker PT CHT, Lori Algar OTD OTR/L CHT)	American Society of Hand Therapists (ASHT)
5	Tamara Pringsheim, MD, MSc	American Academy of Neurology (AAN)
6	Benn Smith, MD, FAAN, FANA	American Association of Neuromuscular and Electrodiagnostic Medicine (AANEM)
7	Noah Matthew Raizman, MD	American Society for Surgery of the Hand (ASSH)

Peer Reviewer Demographics

Reviewer #	Name of Reviewer	Primary Specialty	Representing Society
1	Mark I. Ellen, MD	Sports Medicine	American Academy of Physical Medicine and Rehabilitation
1	Richard D Zorowitz, MD	Rehab/Prosthetics and Orthotics	American Academy of Physical Medicine and Rehabilitation
2	Umar Choudry, MD, FACS	Plastic Surgery	American Society of Plastic Surgeons
2	Karol A Gutowski, MD	Plastic Surgery	American Society of Plastic Surgeons
2	Gary R Culbertson, MD, FACS	Plastic Surgery	American Society of Plastic Surgeons
2	Ash Patel, MBChB FACS	Plastic Surgery	American Society of Plastic Surgeons
3	Warren C. Hammert, MD	Hand	American Association for Hand Surgery
4	Ann Lucado PT, PhD (representing ASHT research committee)	Hand	American Society of Hand Therapists
5	Tamara Pringsheim, MD, MSc	Neurology	American Academy of Neurology
6	Benn Smith, MD, FAAN, FANA	Neurology	American Association of Neuromuscular and Electrodiagnostic Medicine
7	Noah Matthew Raizman, MD	Hand	American Society for Surgery of the Hand

Peer Reviewers' Disclosure Information

All peer reviewers are required to disclose any possible conflicts that would bias their review via a series of 10 questions (see Table 2). For any positive responses to the questions (i.e. "Yes"), the reviewer was asked to provide details on their possible conflict.

Table 2. Disclosure Question Key

Disclosure Question	Disclosure Question Details
A	A) Do you or a member of your immediate family receive royalties for any pharmaceutical, biomaterial or orthopaedic product or device?
B	B) Within the past twelve months, have you or a member of your immediate family served on the speakers bureau or have you been paid an honorarium to present by any pharmaceutical, biomaterial or orthopaedic product or device company?
C	C) Are you or a member of your immediate family a PAID EMPLOYEE for any pharmaceutical, biomaterial or orthopaedic device or equipment company, or supplier?
D	D) Are you or a member of your immediate family a PAID CONSULTANT for any pharmaceutical, biomaterial or orthopaedic device or equipment company, or supplier?
E	E) Are you or a member of your immediate family an UNPAID CONSULTANT for any pharmaceutical, biomaterial or orthopaedic device or equipment company, or supplier?
F	F) Do you or a member of your immediate family own stock or stock options in any pharmaceutical, biomaterial or orthopaedic device or equipment company, or supplier (excluding mutual funds)
G	G) Do you or a member of your immediate family receive research or institutional support as a principal investigator from any pharmaceutical, biomaterial or orthopaedic device or equipment company, or supplier?
H	H) Do you or a member of your immediate family receive any other financial or material support from any pharmaceutical, biomaterial or orthopaedic device and equipment company or supplier?
I	I) Do you or a member of your immediate family receive any royalties, financial or material support from any medical and/or orthopaedic publishers?
J	J) Do you or a member of your immediate family serve on the editorial or governing board of any medical and/or orthopaedic publication?

Table 3. Peer Reviewer’s Disclosure Information

Reviewer #	Name of Reviewer	Please list your AAOS Customer # below (Required):	A	B	C	D	E	F	G	H	I	J
1	Mark I. Ellen, MD		No	No	No	No	No	Pfizer: Stock or stock Options; teva pharmaceuticals: Stock or stock Options	No	No	No	AAOS: Board or committee member; AAPNR: Editorial or governing board
1	Richard D Zorowitz, MD		No	No	No	Yes, Avanir Pharmaceuticals	No	No	No	No	No	Yes, Stroke Topics in Stroke Rehabilitation Archives of Physical Medicine and Rehabilitation
2	Umar Choudry, MD, FACS		No	No	No	No	No	No	No	No	No	No
2	Karol A Gutowski, MD		No	Yes, Suneva Medical, maker of cosmetic injectable soft tissue filler product (Less than \$3000)	No	Yes, Surgical Technologies, maker of sutures (Less than \$1000)	Yes, RTI, maker of biologic dermal matrix	No	No	No	No	No
2	Gary R Culbertson, MD, FACS		No	No	No	No	No	No	No	No	No	No
2	Ash Patel, MBChB FACS		No	No	Yes, AMRI	No	No	No	No	No	No	No
3	Warren C. Hammert, MD	1168254										

Reviewer #	Name of Reviewer	Please list your AAOS Customer # below (Required):	A	B	C	D	E	F	G	H	I	J
4	Ann Lucado PT, PhD (representing ASHT research committee)		No	No	No	No	No	No	No	No	No	No
5	Tamara Pringsheim, MD, MSc		No	No	No	No	No	No	No	No	No	No
6	Benn Smith, MD, FAAN, FANA		No	No	No	No	No	No	No	No	No	No
7	Noah Matthew Raizman, MD	550561										

Table 4. Peer Reviewer Detailed Disclosure Information

No detailed disclosure items reported

Peer Reviewer Responses to Structured Peer Review Form Questions

All peer reviewers are asked 16 structured peer review questions which have been adapted from the Appraisal of Guidelines for Research and Evaluation (AGREE) II Criteria*. Their responses to these questions are listed on the next few pages.

Table 5. Peer Reviewer Responses to Structured Peer Review Questions 1-4

Reviewer(s) #	Reviewer(s)	Name of Society	1. The overall objective(s) of the guideline is (are) specifically described.	2. The health question(s) covered by the guideline is (are) specifically described.	3. The guideline's target audience is clearly described.	4. There is an explicit link between the recommendations and the supporting evidence.
1	Mark I. Ellen, MD; Richard D. Zorowitz, MD	American Academy of Physical Medicine and Rehabilitation (AAPMR)	Strongly Agree	Strongly Agree	Agree	Strongly Agree
2	Umar Choudry, MD, FACS; Karol A Gutowski, MD; Gary R Culbertson, MD, FACS; Ash Patel, MBChB, FACS	American Society of Plastic Surgeons (ASPS)	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
3	Warren C. Hammert, MD	American Association for Hand Surgery	Strongly Agree	Strongly Agree	Strongly Agree	Neutral
4	Ann Lucado, PT, PhD (representing ASHT research committee including Marsha Lawrence PT CHT, Diane Coker PT CHT, Lori Algar OTD OTR/L CHT)	American Society of Hand Therapists	Strongly Agree	Disagree	Strongly Agree	Neutral
5	Tamara Pringsheim, MD, MSc	American Academy of Neurology	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
6	Benn Smith, MD, FAAN, FANA	American Association of Neuromuscular and Electromyography Medicine	Agree	Agree	Strongly Agree	Neutral
7	Noah Matthew Raizman, MD	American Society for Surgery of the Hand (ASSH)	Agree	Disagree	Disagree	Agree

Table 6. Peer Reviewer Responses to Structured Peer Review Questions 5-8

Reviewer(s) #	Reviewer(s)	Name of Society	5. Given the nature of the topic and the data, all clinically important outcomes are considered.	6. The patients to whom this guideline is meant to apply are specifically described.	7. The criteria used to select articles for inclusion are appropriate.	8. The reasons why some studies were excluded are clearly described.
1	Mark I. Ellen, MD; Richard D. Zorowitz, MD	American Academy of Physical Medicine and Rehabilitation (AAPMR)	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
2	Umar Choudry, MD, FACS; Karol A Gutowski, MD; Gary R Culbertson, MD, FACS; Ash Patel, MBChB, FACS	American Society of Plastic Surgeons (ASPS)	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
3	Warren C. Hammert, MD	American Association for Hand Surgery	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
4	Ann Lucado, PT, PhD (representing ASHT research committee including Marsha Lawrence PT CHT, Diane Coker PT CHT, Lori Algar OTD OTR/L CHT)	American Society of Hand Therapists	Strongly Agree	Agree	Disagree	Agree
5	Tamara Pringsheim, MD, MSc	American Academy of Neurology	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
6	Benn Smith, MD, FAAN, FANA	American Association of Neuromuscular and Electrodiagnostic Medicine	Strongly Disagree	Disagree	Strongly Disagree	Strongly Disagree
7	Noah Matthew Raizman, MD	American Society for Surgery of the Hand (ASSH)	Disagree	Disagree	Neutral	Agree

Table 7. Peer Reviewer Responses to Structured Peer Review Questions 9-12

Reviewer(s) #	Reviewer(s)	Name of Society	9. All important studies that met the article inclusion criteria are included.	10. The validity of the studies is appropriately appraised.	11. The methods are described in such a way as to be reproducible.	12. The statistical methods are appropriate to the material and the objectives of this guideline.
1	Mark I. Ellen, MD; Richard D. Zorowitz, MD	American Academy of Physical Medicine and Rehabilitation (AAPMR)	Agree	Strongly Agree	Strongly Agree	Strongly Agree
2	Umar Choudry, MD, FACS; Karol A Gutowski, MD; Gary R Culbertson, MD, FACS; Ash Patel, MBChB, FACS	American Society of Plastic Surgeons (ASPS)	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
3	Warren C. Hammert, MD	American Association for Hand Surgery	Strongly Agree	Neutral	Agree	Strongly Agree
4	Ann Lucado, PT, PhD (representing ASHT research committee including Marsha Lawrence PT CHT, Diane Coker PT CHT, Lori Algar OTD OTR/L CHT)	American Society of Hand Therapists	Disagree	Agree	Strongly Agree	Strongly Agree
5	Tamara Pringsheim, MD, MSc	American Academy of Neurology	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
6	Benn Smith, MD, FAAN, FANA	American Association of Neuromuscular and Electromyography Medicine	Strongly Disagree	Agree	Agree	Agree
7	Noah Matthew Raizman, MD	American Society for Surgery of the Hand (ASSH)	Agree	Agree	Strongly Agree	Strongly Agree

Table 8. Peer Reviewer Responses to Structured Peer Review Questions 13-16

Reviewer(s) #	Reviewer(s)	Name of Society	13. Important parameters (e.g., setting, study population, study design) that could affect study results are systematically addressed.	14. Health benefits, side effects, and risks are adequately addressed.	15. The writing style is appropriate for health care professionals.	16. The grades assigned to each recommendation are appropriate.
1	Mark I. Ellen, MD; Richard D. Zorowitz, MD	American Academy of Physical Medicine and Rehabilitation (AAPMR)	Strongly Agree	Strongly Agree	Strongly Agree	Neutral
2	Umar Choudry, MD, FACS; Karol A Gutowski, MD; Gary R Culbertson, MD, FACS; Ash Patel, MBChB, FACS	American Society of Plastic Surgeons (ASPS)	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
3	Warren C. Hammert, MD	American Association for Hand Surgery	Neutral	Agree	Strongly Agree	Agree
4	Ann Lucado, PT, PhD (representing ASHT research committee including Marsha Lawrence PT CHT, Diane Coker PT CHT, Lori Algar OTD OTR/L CHT)	American Society of Hand Therapists	Strongly Agree	Strongly Agree	Neutral	Agree
5	Tamara Pringsheim, MD, MSc	American Academy of Neurology	Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree
6	Benn Smith, MD, FAAN, FANA	American Association of Neuromuscular and Electrodiagnostic Medicine	Agree	Disagree	Agree	Neutral
7	Noah Matthew Raizman, MD	American Society for Surgery of the Hand (ASSH)	Strongly Agree	Strongly Agree	Disagree	Disagree

Peer Reviewers' Recommendation for Use of this Guideline in Clinical Practice

Would you recommend these guidelines for use in clinical practice?

Reviewer(s) #	Reviewer(s)	Name of Society	Would you recommend these guidelines for use in clinical practice?
1	Mark I. Ellen, MD; Richard D. Zorowitz, MD	American Academy of Physical Medicine and Rehabilitation (AAPMR)	Recommend
2	Umar Choudry, MD, FACS; Karol A Gutowski, MD; Gary R Culbertson, MD, FACS; Ash Patel, MBChB, FACS	American Society of Plastic Surgeons (ASPS)	Strongly Recommend
3	Warren C. Hammert, MD	American Association for Hand Surgery	Recommend
4	Ann Lucado, PT, PhD (representing ASHT research committee including Marsha Lawrence PT CHT, Diane Coker PT CHT, Lori Algar OTD OTR/L CHT)	American Society of Hand Therapists	Unsure
5	Tamara Pringsheim, MD, MSc	American Academy of Neurology	Strongly Recommend
6	Benn Smith, MD, FAAN, FANA	American Association of Neuromuscular and Electrodiagnostic Medicine	Would Not Recommend
7	Noah Matthew Raizman, MD	American Society for Surgery of the Hand (ASSH)	Would Not Recommend

Peer Reviewer Detailed Responses

Reviewer #1, Mark I. Ellen, MD; Richard D. Zorowitz, MD – American Academy of Physical Medicine and Rehabilitation (AAPM&R)

Reviewer #	Name of Reviewer (Required)	What is the name of the society that you are representing?	Please provide a brief explanation of both your positive responses to the Structured Peer Review Form Questions
1	Mark I. Ellen, MD; Richard D. Zorowitz, MD	American Academy of Physical Medicine and Rehabilitation (AAPMR)	<p>A. Mark Ellen: The target audience of orthopedic surgeons is clearly described well. However; others such as physiatrists are specialists that typically are outpatient based in private same or multi-specialty groups, we are not hospital based primary care physicians.</p> <p>B. Mark Ellen: There are a couple of answers that appear as double negatives such as symptoms that patients are not reporting, this is difficult to follow and I know the writing team is fatigued by the time they get to this but it should be word-smithed, "as not having a symptom probably means you don't have something " Not sure of the benefit of this sort of statement.</p> <p>C. Mark Ellen: When discussing limited evidence of history and physical findings when taking them as a single entities, none alone seem to have any true predictive value. It is not stated or implied if any combination of these entities has a value of determining CTS? (Under "Manuevers" and "History").</p> <p>D. Mark Ellen: Under History / Manuevers it's clearly documented that alone none of the parameters are positive or negative predictors of CTS, what about any combinations. The double Negative statement of those not having symptoms, don't have the disease, is written poorly and I'm not sure how important it is as written.</p> <p>E. Mark Ellen: One final thought, most physiatrists (we are specialists, not primary care). Work in the outpatient group in either same special or multi-specialist groups, not within a hospital setting.</p> <p>F. Richard Zorowitz: This appears to be a well-researched guideline. Issues include: - The consensus panel currently is blinded. We will need to see the make-up of the panel to make sure that it includes all appropriate disciplines and laypeople from the target population.</p> <p>G. Richard Zorowitz: The guideline should provide some advice and/or tools on how the recommendations can be put into practice.</p>

Reviewer #	Name of Reviewer (Required)	What is the name of the society that you are representing?	Please provide a brief explanation of both your positive responses to the Structured Peer Review Form Questions
			<p>H. Richard Zorowitz: The guideline should describe facilitators and barriers to its application.</p> <p>I. Richard Zorowitz: The guideline should include potential resource implications of applying the recommendations.</p> <p>J. Richard Zorowitz: The guideline should list some monitoring and/or auditing criteria based upon the evidence presented.</p> <p>K. Richard Zorowitz: A statement should be included that the views of the funding body have not influenced the content of the guideline.</p> <p>L. Richard Zorowitz: With respect to content, the guideline regarding hand-held devices does not reflect the conclusion of the one article cited in the recommendation. It should state that hand-held devices should only be used in patients with typical CTS symptoms and signs and no muscle wasting who have had careful neurological assessment.</p>

Workgroup Response

Dear Drs. Mark I. Ellen and Richard D. Zorowitz,

Thank you for your expert review of the Clinical Practice Guideline on the Management of Carpal Tunnel Syndrome. We will address your comments by guideline section in the order that you listed them.

- A. We appreciate your comment. The intended users are outlined in lines 802-812. We agree that psychiatry is not exclusively practiced in an inpatient setting. We will make corrections to this statement.
- B. Thank you. If you could be more specific, then we can review these particular comments. Guidelines for wording are found in lines 1104-1113. Response
- C. Thank you. The first five guideline recommendations concern elements of assessment including history, physical signs and examination maneuvers. In each case, each ‘finding’ was analyzed as a stand-alone independent variable. This guideline is not designed to perform post-hoc analysis on data already published; however, the guideline concerning diagnostic scales does specifically look at high quality evidence exploring the value of diagnostic scales and measures, which do incorporate multiple findings in the assessment of carpal tunnel syndrome.
- D. Please refer to the explanation in ‘C.’ Please refer to lines 1104-1113 regarding the specific verbiage implemented.
- E. Thank you for this comment. We agree, and will reword the ‘intended users’ section.
- F. The identity of the Work group members is blinded during the review stages to prevent review bias. However, all work group members will be listed in the final document along with their detailed disclosures. AAOS guidelines require all work group members to be free from relevant conflicts of interest during working period and one year after the publication of the guideline.
- G. The final version of the guideline will be disseminated via the OrthoGuideline website (www.orthoguidelines.org) and Android/iPhone apps. An appropriate use criteria, or AUC (www.orthoguidelines.org/auc), will also be developed with the aim of providing patient specific recommendations for appropriate treatments using the guideline as the evidence foundation. The AUC process also allows for the creation of clinical checklists that can be used as in-office resources.
- H. Thank you for your suggestion.
- I. Thank you. Guideline recommendations evaluate the efficacy of procedures irrespective of cost. Cost analysis is currently out of the scope of this guideline.
- J. Thank you. The search methodology, as well as the criteria rating the level of evidence is included in the report.
- K. We agree and will add this statement.
- L. Thank you for your comments.

Respectfully,

2015 CTS Guideline Workgroup

Reviewer #2, Umar Choudry, MD, FACS; Karol A Gutowski, MD; Gary R Culbertson, MD, FACS; Ash Patel, MBChB, FACS - American Society of Plastic Surgeons (ASPS)

Reviewer #	Name of Reviewer (Required)	What is the name of the society that you are representing?	Please provide a brief explanation of both your positive responses to the Structured Peer Review Form Questions
2	Umar Choudry, MD, FACS; Karol A Gutowski, MD; Gary R Culbertson, MD, FACS; Ash Patel, MBChB, FACS	American Society of Plastic Surgeons (ASPS)	<p>A. Umar Choudry: Great effort. Thanks! Some suggestions: Page 4, Line 80. In the table the language used to describe "Limited" could have better grammar, and the asterisk for consensus has no description that I could find.</p> <p>B. Umar Choudry: For homogeneity, Pages 25 and 26, Lines 837, 846, 853, 858, 863 CTS should be capitalized.</p> <p>C. Umar Choudry: Page 28, Line 942 should have a space.</p> <p>D. Umar Choudry: I did not see a good definition of CTS in the beginning of this Guideline. I would think it a good idea to define the problem before we embark on this.</p> <p>E. Umar Choudry: Page 41, Line 1325, needs a space.</p> <p>F. Umar Choudry: In the part of future research (e.g. page 88, line 1463) it is stated that standardizing symptoms and severity is important. This goes back to my critique in #4. A definition of the problem goes hand-in-hand with this. This holds true for other sub-topics as well.</p> <p>G. Umar Choudry: It's quite striking reading that despite our basic teaching of CTS and it's "definition" none of those (e.g. numbness and tingling in the distribution of the median nerve, night symptoms, etc) findings are shown to be sensitive or specific based on literature! This to me means we need to majorly rehab how we define CTS!</p> <p>H. Umar Choudry: Page 257, Line 1915. This whole paragraph has nothing to do with HRT or OCs. May need a re-write.</p> <p>I. Umar Choudry: I may have missed it, but though they discuss work related activities' association (or no association) with CTS, there is no mention of worker's comp and it's impact on the diagnosis of CTS.</p> <p>J. Umar Choudry: There is no data on recurrent CTS. This is an important and frequently seen clinical entity.</p> <p>K. Umar Choudry: Page 501, Line 2387, I would argue that splint use could lead to stiffness.</p> <p>L. Umar Choudry: I feel there should be a separate sub-group for childhood CTS. The etiology is different and treatment may differ. Nowadays with more social media and video games, and the increased stress on sports, childhood CTS is seen more often.</p>

Reviewer #	Name of Reviewer (Required)	What is the name of the society that you are representing?	Please provide a brief explanation of both your positive responses to the Structured Peer Review Form Questions
			<p>M. Umar Choudry: Page 603, surgical release of CTS. I would suggest discussing proximal media nerve compressions as another source of nerve compressions and its impact on outcome. If the proximal nerve compression (forearm or neck) is not released or thought of, outcome will be sub-optimal.</p> <p>N. Umar Choudry: Page 767, Line 3252. I would add in the future research opportunities, studying pre-operative antibiotics in Diabetics or other immune compromised patient populations.</p> <p>O. Umar Choudry: Some wording needs to be improved, particularly the uncontrolled use of negative and double-negative statements in the recommendations - to the point where they are difficult to understand. Examples: line 136 & 137</p> <p>P. Some statements should be more definitive. Example: What does "might be used" in line 143 mean? Also line 165 "could be used".</p> <p>Q. Would it be better to restate the conclusions as a statement followed by the Strength of Recommendation? Example: Line 254 - Do not use magnetic therapy of the treatment of carpal tunnel syndrome. Strong Evidence.</p> <p>R. Gary Cultbertson: Excellent Clinical Practice Guideline for CTS.</p> <p>S. Ash Patel: On reading the methods (line 880) it appears that up to this stage only AAOS members participated in the producing the CPG. No information is available regarding the other professional groups invited to review. The CPG is otherwise thoroughly researched, detailed and well written.</p>

Workgroup Response

Dear Drs. Umar Choudry, MD, FACS; Karol A Gutowski, MD; Gary R Culbertson, MD, FACS; Ash Patel, MBChB, FACS,

Thank you for your expert review of the Clinical Practice Guideline on the Management of Carpal Tunnel Syndrome. We will address your comments by guideline section in the order that you listed them.

- A. Thank you. The wording for the ‘limited’ section is direct from other AAOS guidelines. We agree the asterisk in the draft you reviewed is not referenced, but the explanation is located in line 1112-1114, and further detailed in Appendix VII. We will ensure that this asterisk is easily referenced.
- B. This typo has been corrected.
- C. This typo has been corrected.
- D. Thank you. The following definition of carpal tunnel syndrome has been added to the introduction section: “For the purpose of this guideline, Carpal Tunnel Syndrome (CTS) is defined as follows: Carpal Tunnel Syndrome is a symptomatic compression neuropathy of the median nerve at the level of the wrist, characterized physiologically by evidence of increased pressure within the carpal tunnel and decreased function of the nerve at that level. Carpal Tunnel Syndrome can be caused by many different diseases, conditions and events. It is characterized by patients as producing numbness, tingling, hand and arm pain and muscle dysfunction. The disorder is not restricted by age, gender, ethnicity, or occupation and is associated with or caused by systemic disease and local mechanical and disease factors.”
- E. This typo has been corrected.
- F. Thank you. This comment refers to standardizing the terminology for symptoms patients described, not the definition of CTS.
- G. Thank you. The findings support that no SINGLE symptom, finding, or maneuver will diagnose CTS with the degree of precision any practitioner would like. Instead, and as indicated in the section of diagnostic scales, there is likely a complex of symptoms and findings that allow the diagnosis of CTS to be made with precision. As you indicate, relying on a single finding is likely to lead the practitioner to misdiagnose and potentially mistreat a substantial portion of the time.
- H. You are correct. A new Future Research section will be constructed for this recommendation.
- I. Thank you. Workers’ compensation was not considered as an independent factor but that the work group looked at many studies that included workers.
- J. Thank you, see response in ‘I.’
- K. Thank you. Any argument would have to be based upon the evidence used to create the guidelines. Where evidence was not available the panel made a statement based on consensus.
- L. Thank you. This was out of the scope of this guideline. Perhaps, the next guideline can address childhood risk of CTS.

- M. Thank you. Your comment refers to conditions that can mimic CTS, but are not CTS. Pronator syndrome, for example, is a condition excluded in this guideline. This guideline exclusively discusses CTS, and not median neuropathy in general.
- N. Thank you. There is no doubt these are important questions. The future research statement does address the issue of 'routine use.' Your suggestions to include language regarding preoperative antibiotics in diabetics and/or other immune compromised populations have been added to the guideline.
- O. Thank you. The specific recommendations for wording are found in lines 1104-1113. These are the current wording templates used by the AAOS to ensure standardization between guidelines.
- P. Thank you. See comments in 'O.'
- Q. Thank you. Your suggestion will be passed along to the AAOS Committee on Evidence-Based Quality and Value for their consideration. Please see comments for 'O'.
- R. Thank you for your comments.
- S. All AAOS clinical practice guidelines are created using multidisciplinary work groups representing numerous specialty societies. The final version of this guideline will list all participating societies in the work group roster section.

Respectfully,

2015 CTS Guideline Workgroup

Reviewer #3, Warren C. Hammert, MD - American Association for Hand Surgery (AAHS)

Reviewer #	Name of Reviewer (Required)	What is the name of the society that you are representing?	Please provide a brief explanation of both your positive responses to the Structured Peer Review Form Questions
3	Warren C. Hammert, MD	American Association for Hand Surgery	<p>A. I was the reviewer for American Association for Hand Surgery and following my review, this was vetted by the presidential line and current and previous research directors. Overall, we feel the guidelines are inclusive of the evidence and appropriate for diagnosis and treatment of carpal tunnel syndrome. We do have concerns about the epidemiology section as the literature on this topic is not as clear and this has substantial implications for patients as well as the legal system/ workers compensation coverage or refusal as well as potentially for private insurers, who may consider this condition work related and refuse to reimburse. This section begins on line 1743 (page 253) under the heading "Risk Factor Guideline Recommendations" and continuing through line 2351 (page 500). A study on etiology is different than for diagnosis or treatment and in our opinion, is more difficult to do well. These articles do not appear to consistently use an objective means of diagnosis, such as electrodiagnostic studies and often include subjective symptoms, such as pain and discomfort with repetitive activities, which are not clinically consistent with a clear clinical diagnosis of carpal tunnel syndrome. Based on these concerns and the impact of these studies, our feeling is this would be best omitted from the guidelines and the focus be on diagnosis and treatment of carpal tunnel syndrome.</p>

Workgroup Response

Dear Dr. Warren C. Hammert,

Thank you for your expert review of the Clinical Practice Guideline on the Management of Carpal Tunnel Syndrome. We will address your comments by guideline section in the order that you listed them.

A. Thank you for your insight and comments. The thorough assessment of any individual with CTS includes obtaining pertinent information regarding past medical history, medications, social history, and perhaps work history, and not just symptoms, signs and examination maneuvers. The Workgroup determined that looking at associations would be an important part of this exercise. The assessment of these independent variables determines the presence, or absence, of a statistical association and does not imply or assess etiology. Picking and choosing categories to review would be unscientific and insert an automatic bias into the guidelines sections concerning assessment and diagnosis. Section IV, starting on page 27, details the rigorous process involved in the culling, analyzing, evaluating and wording of these guidelines. We cannot control how parties will interpret and utilize these findings, but they do reflect our current literature, and should be part of this assessment.

The only studies included in the assessment of associations or “risk factors” were those that met our standard for methodologic quality. In many, but not all, instances there was an external standard used as a comparator, most frequently electrodiagnostic studies. Although there are problems with using electrodiagnostic studies as a reference standard, in this setting this was considered acceptable to allow an estimate to be made of the association between a given factor and the diagnosis of CTS made using electrodiagnostic testing. The demonstration of an association does not imply an etiologic linkage but may provide important information to clinicians managing CTS.

Respectfully,

2015 CTS Guideline Workgroup

Reviewer #4, American Society of Hand Therapists (ASHT) Research Committee

Reviewer #	Name of Reviewer (Required)	What is the name of the society that you are representing?	Please provide a brief explanation of both your positive responses to the Structured Peer Review Form Questions
4	ASHT Research Committee: Ann Lucado, PT, PhD; Marsha Lawrence PT CHT, Diane Coker PT CHT, Lori Algar OTD OTR/L CHT)	American Society of Hand Therapists	<p>A. The summary of recommendations section is overall clear, concise, well defined, and fairly easy to read. At times the negatives in the recommendations are a little confusing to interpret. (pp 4-13)</p> <p>B. Line 80 is missing the word “or”</p> <p>C. Line 135 p 6 the wording of the recommendation relating to patient reported numbness or pain is confusing- recommend clarifying this statement that currently says; “Limited evidence supports that patients who do not report frequent numbness or pain might not have CTS.” Be more explicit in the recommendation- are you saying that the AAOS is recommending that practitioners not ask about numbness or pain?</p> <p>D. Line 178 p 8 section B E, K: not sure if this is redundant-tendinopathies vs. tendonitis: Are you implying proximal tendonitis versus local tendinopathies? This needs to be clarified.</p> <p>E. Line 296 is the same as 303 and this seems to be an error. III. INTRODUCTION: Section provides overall objectives/rationale, good overall descriptions of the general patient population to whom this CPG can be applied, the target audience are all clear. Future research section could be stronger.</p> <p>F. 846 p 25: Typo CTS should be capitalized (occurs multiple times throughout the document)</p> <p>G. IV. METHODS Section provides transparency in methods utilized to minimize bias, clear inclusion and exclusion criteria were provided. However, it is not clear as to why only clinical studies were included and no systematic reviews or meta-analyses were. Additionally, weaker studies having as few as 10 people were included in the review, which may increase the likelihood of type II errors in those studies. Recommend adding some explanation of these decisions would be helpful.</p> <p>H. Quality appraisal questions, definitions of the strength of recommendations and wording of final recommendations are clearly defined in this section. Statistical methods, peer review, approval process, revision plans, and dissemination are all clearly described.</p> <p>I. Full wording of the PICO questions that directed the literature search are not clearly defined; recommend including a section that explicitly states these questions.</p>

Reviewer #	Name of Reviewer (Required)	What is the name of the society that you are representing?	Please provide a brief explanation of both your positive responses to the Structured Peer Review Form Questions
			<p>J. VI. Full guideline recommendations section is extensive and very lengthy prohibiting most clinicians from reading the full guideline. Tables and charts are helpful; however, this CPG does not include several interventions articles in table format.</p> <p>K. Again, it is not clear why meta-analyses were not included and used to formulate the guideline.</p> <p>L. Also there is no clarification as to the benefit time frame of the interventions - short term versus long term benefit.</p> <p>M. Many studies included in this review look at mild to moderate severity as opposed to severe CTS and the recommendations don't clarify the level of severity effectively treated by specific interventions.</p> <p>N. 942 typo minimum of (space missing)</p> <p>O. 982 MCII should be MCID</p> <p>P. 983 MCI vs MID or MCID</p> <p>Q. 1126 typo: instances</p> <p>R. 1260 space after VI</p> <p>S. 1272 Typos rule in</p> <p>T. 1277 extra space because of</p> <p>U. 1325 typo</p> <p>V. 1326 typos</p> <p>W. 1329 misspelling of study</p> <p>X. 1455 typo</p> <p>Y. 1561 space b/w with CTS</p> <p>Z. 1585 typo</p> <p>AA. 1298 needs a space thereference</p> <p>BB.Line 1325 space between words</p> <p>CC.Line 1329 study Is there a key for Table 5?</p> <p>DD. Line 1455 and 1585 are missing a space</p> <p>EE. DIAGNOSTIC SCALES 1634 it seems the evidence cited indicated that the diagnostic tests were not valuable. It is not clear as to how the authors have reached their recommendation from the cited evidence.</p> <p>FF. RISK FACTOR GUIDELINE RECOMMENDATIONS Line 1945 correct to included</p> <p>GG. NONOPERATIVE TREATMENTS FOR CTS: 2359 Immobilization: p 501 We disagree with the rating of evidence for the Hall and Manente studies as supported by 2 Cochrane Reviews (O'Connor 2012, Page 2012)</p>

Reviewer #	Name of Reviewer (Required)	What is the name of the society that you are representing?	Please provide a brief explanation of both your positive responses to the Structured Peer Review Form Questions
			<p>HH. 2365: typo: VAS 2374-2375 repeated line-did you mean to put the 2 week results here or just inadvertently repeated the 4 week results twice. We found multiple discrepancies in specific article interpretation and grading of quality assessment.</p> <p>II. Specifically, we would recommend the CPG team re-evaluate the following studies: Soyupek(2012), Yilditz (2011),Evcik (2007), Fusakul (2014) Bakhtiary 2004</p> <p>JJ. Additionally, we would recommend the CPG team consider adding the following studies to the existing review: Dincer 2009 G. Therapeutic US: No rationale for the intensity and high number of treatments</p> <p>KK. 3362 typo? Differences?</p> <p>LL. 3363 typos who had</p> <p>MM. Page 317 BMI</p> <p>NN. Page 325 BMI</p> <p>OO. Page 366 having in top significance column- grammar error Below</p> <p>PP. 2148 who not how in the next 3 boxes under significance</p> <p>QQ. Table 107-12 unclear what 1 versus 2 is (and the other similar tables) when you are only looking at the tables Should it be orthosis instead of splint?</p> <p>RR.Line 2923 an index</p> <p>SS. ine 2928 grammar error</p> <p>TT.Line 3009 grammar error</p> <p>UU. Line 3295 spacing issue</p> <p>VV. Line 3363 spacing between words</p> <p>WW. Page 831- repeat phrase about bulky dressing in table under statistical significance</p>

Workgroup Response

Dear Dr. ASHT Research Committee,

Thank you for your expert review of the Clinical Practice Guideline on the Management of Carpal Tunnel Syndrome. We will address your comments by guideline section in the order that you listed them.

- A. Thank you. The terminology and style used may not always be optimal but was chosen to be consistent with other AAOS clinical practice guidelines.
- B. This typo has been corrected.
- C. Thank you. Lines 1087-1121 detail the mechanism by which the analysis of the data is converted to guideline statements. This statement is intended to indicate that using the absence of patient reported numbness or pain to rule out carpal tunnel syndrome is supported by limited evidence only.
- D. Reference to either term has now been changed to include both: “tendinopathy/tendinitis”.
- E. Thank you. The recommendation has been corrected. The future research sections are detailed for each individual recommendation throughout the document.
- F. This typo has been corrected.
- G. AAOS clinical practice guidelines only evaluate primary research. However, the bibliographies of systematic reviews and meta-analyses were reviewed to ensure that the studies they addressed were also addressed in our guideline, pending they met the inclusion criteria set by the clinician work group.

The minimum number of patients as per outlined within the inclusion criteria stipulates that each clinical study must include at least 10 patients per group. Due to the limited number of studies comparing relevant interventions, the reporting of pertinent outcomes of interest, as well as the combination of strong random sequence generation, allocation concealment, and/or blinding, studies with smaller number of patients were considered.

- H. Thank you.
- I. A list of all of the a priori PICO questions were/are listed in Appendix III of the guideline.
- J. Staff Response
- K. See comment G.
- L. Thank you. The section on ‘Study Selection Criteria,’ in lines 928-942 detail the minimum follow up times for the different types of studies. A minimum of one-month follow up was required for non-operative interventions while three months was set as the threshold for operative interventions. This was the decision reached by the panel at the onset of these guidelines and was based on a desire to avoid missing any non-operative treatments that had even short-term benefit.
- M. Thank you. There are a few studies that have specifically addressed the treatment of CTS in severe cases; however, they have not been high level studies. Level 1 and 2 studies were always prioritized when possible in the guidelines. We would agree that high level studies addressing severe carpal tunnel syndrome is lacking although there is also no clear evidence to support the idea that disease severity has a definite impact on the outcome of treatment as it may in other conditions.
- N. This typo has been corrected.

- O. This typo has been corrected.
- P. This typo has been corrected.
- Q. This typo has been corrected.
- R. This typo has been corrected.
- S. This typo has been corrected.
- T. This typo has been corrected.
- U. This typo has been corrected.
- V. This typo has been corrected.
- W. This typo has been corrected.
- X. This typo has been corrected.
- Y. This typo has been corrected.
- Z. This typo has been corrected.
- AA. This typo has been corrected.
- BB. This typo has been corrected.
- CC. Table 5 is a summary of the quality of all articles for that recommendation. There is no key needed for this table.
- DD. This typo has been corrected.
- EE. Thank you. The Workgroup was not unanimous in this opinion but the majority of the group agreed that there is no widespread consensus a reference standard for CTS. The evidence cited demonstrated that the purported ‘value’ a diagnostic strategy depended upon the reference standard that was used. Electrodiagnostic testing performed inconsistently when diagnostic scales were the reference standard, and vice-versa. In one study which looked at changes to the probability of CTS after electrodiagnostic testing (Graham), there were no clinically relevant changes to the probability established clinically, leading to the conclusion that electrodiagnostic testing did not make a material contribution to the diagnosis of CTS in most cases. Therefore, the guideline committee concluded that *either* clinical diagnostic scales or electrodiagnostic tests could be used to make the diagnosis of CTS. This was based on evidence determined to be “moderate” in quality. The discussion following this recommendation, including the ‘risks/harms’ and ‘future research’ sections outline both the true limitations of current scientific knowledge as well as the hope that better knowledge is forthcoming.
- FF. This typo has been corrected.
- GG. Thank you. The quality charts have been updated. (Manente 2001)-re-evaluated quality. Blinding downgraded to *unclear* as Cochrane review (Page 2012) indicated no blinding based upon personal communication with the author. Random sequence generation and allocation concealment downgraded to

unclear. Incomplete outcome data, selective reporting, and other bias not affected. Overall quality unaffected and remains *High Quality*

(Hall 2013)-We did not find a Cochrane review related to CTS immobilization treatment published after August 2013. This randomized controlled trial was appraised as *unclear* with regards to allocation concealment and *high risk of bias* in the blinding of participants and personnel. Incomplete outcome data and selective reporting was rated as *low risk*. Overall quality rated as *High*.

HH. The inclusion criteria stipulates that follow-up time for conservative treatments is to be reported at a minimum of 4 weeks (1 month). The earliest eligible GICQ score was used and analyzed at 4 weeks.

II. Thank you. The quality charts have been updated as reflected below.

- (Bakhtary 2004)-re-evaluated quality. Random sequence generation upgraded to *low risk*. Allocation concealment and blinding downgraded to *unclear*. Incomplete outcome data and selective reporting rated as *low risk*. Overall quality rated as *High*.
- (Evcik 2007)-re-evaluated quality. Random sequence generation, blinding, and other bias rated as *low risk*. Allocation concealment downgraded to *unclear*. Selective reporting rated as *unclear*. Overall quality rated as *High*.
- (Fusakul 2014)-re-evaluated quality. Random sequence generation downgraded to *unclear*. Allocation concealment, blinding, incomplete outcome data, and other bias rated as *low risk*. Selective reporting rated as *unclear*. Overall quality rated as *High*.
- (Soyupek 2012)-re-evaluated quality. Random sequence generation and allocation concealment rated as *unclear*. Incomplete outcome data and selective reporting rated as *low risk*. Overall quality rated as *High*.
- (Yildiz 2011)-re-evaluated quality. Random sequence generation downgraded to *unclear*. Allocation concealment, blinding, and incomplete outcome data rated as *low risk*. Selective reporting rated as *unclear*. Overall quality rated as *High*.

JJ. Diner 2009 study was considered but rated as Moderate quality with *unclear* randomization methods, and was thus excluded as *not best available evidence*.

KK. This typo has been corrected.

LL. This typo has been corrected.

MM. This typo has been corrected.

NN. This typo has been corrected.

OO. This typo has been corrected.

PP. This typo has been corrected.

QQ. Treatment 1 represents brace/splint/orthosis and treatment 2 represents no brace/splint/orthosis. Color key will be updated accordingly.

RR. This typo has been corrected.

SS. This typo has been corrected.

TT. This typo has been corrected.

UU. This typo has been corrected.

VV. This typo has been corrected.

WW. “Bulky Dressing” repeats are now deleted.

Respectfully,
2015 CTS Guideline Workgroup

Reviewer #5, Tamara Pringsheim, MD, MSc - American Academy of Neurology (AAN)

Reviewer #	Name of Reviewer (Required)	What is the name of the society that you are representing?	Please provide a brief explanation of both your positive responses to the Structured Peer Review Form Questions
3	Tamara Pringsheim, MD, MSc	American Academy of Neurology	A. Though the guideline is intimidating in its length, I appreciate the effort made to include all relevant materials that led to the recommendations in the guideline. There was an excellent description of the process, the evidence and how conclusions were made. It is an excellent piece of work.

Workgroup Response

Dear Dr. Tamara Pringsheim,

Thank you for your expert review of the Clinical Practice Guideline on the Management of Carpal Tunnel Syndrome. We will address your comments by guideline section in the order that you listed them.

A. Thank you for your review and kind comments.

Respectfully,

2015 CTS Guideline Workgroup

Reviewer #6, Benn Smith, MD, FAAN, FANA - American Association of Neuromuscular and Electrodiagnostic Medicine (AANEM)

Reviewer #	Name of Reviewer (Required)	What is the name of the society that you are representing?	Please provide a brief explanation of both your positive responses to the Structured Peer Review Form Questions
6	Benn Smith, MD, FAAN, FANA	American Association of Neuromuscular and Electrodiagnostic Medicine	<p>A. Guideline Development Group make up: members and affiliations are blinded and inaccessible for review. The reviewer has no idea who these individuals are and from which backgrounds they come.</p> <p>B. The recommendations excluded a huge body of validated scientific evidence on the utility of electrodiagnostic studies in diagnosing CTS. Despite the guidelines themselves pointing to more than 1100 instances of using electrodiagnostic studies as reference standards for diagnosing CTS, these validated tests are excluded as diagnostic measures themselves (other than the brief reference to handheld NCS)</p> <p>C. The exclusion of NCS and other electrodiagnostic studies in the diagnosis of CTS and other conditions which can be confused with CTS including musculoskeletal disorders, cervical radiculopathy, brachial plexopathy and other mononeuropathies in the upper limb is difficult to understand and cannot be justified. Ignoring one of the most sensitive measure to diagnose CTS in such a huge project flies in the face of a wealth of peer reviewed medical scientific literature.</p> <p>D. The document stipulates on page 25 line 820-822 that the patient population is "adult patients with complaints which may be attributable to CTS." This is far too little detail. What symptoms specifically are being looked at? What measures are recommended to insure that conditions mimicking CTS are excluded? For a 1063 page document the single sentence devoted to the study population seems rather meager.</p> <p>E. The guidelines read on p. 28 line 934 that selected studies were required to be of "CTS injury" which implies a traumatic etiology and yet the CPG is on CTS in general and includes mountains of CTS papers which say nothing of trauma as an inciting event in the CTS.</p> <p>F. The study selection criteria do not specifically stipulate diagnostic studies and yet the CPG seeks to evaluate diagnostic modalities for CTS. This will create confusion for surgeons, physicians, patients, healthcare administrators, governmental bodies and third party payers alike. If these individuals and the organizations they represent were to use this document as is to evaluate how CTS should be diagnosed they would conclude that NCS are not even on the</p>

			<p>table as a consideration - which would be even more confusion in that the CPG references NCS as a diagnostic standard more than 1100 times to justify the validity of diagnostic methods under evaluation. In addition the AAEM changed its name in 2004 to AANEM, which should be noted in all mentions of the organization after this date.</p> <p>G. The rationale for excluding the massive body of evidence strongly supporting the use of NCS and EMG to diagnose CTS and to exclude other conditions which can mimic CTS is completely absent. As this guideline will likely be used as an authoritative resource for those interested in diagnosing and treating CTS, exclusion of this body of evidence on electrodiagnostic measures to diagnose CTS is a major omission.</p> <p>H. Many important papers on which methods are available, useful and most sensitive to diagnose CTS are not on the table with this guideline. The major deficiency of the guideline is exclusion of proven electrodiagnostic methods to diagnose CTS. As they now stand these guidelines are incomplete, inadequate and misleading. By excluding electrodiagnostic studies as a long proven mainstay of diagnosis of CTS these guidelines would serve to deprive patients and physicians of a major effective tool in the effort to diagnose and treat upper limb nerve disorders and could well lead to unnecessary surgery for conditions mistakenly thought to be CTS.</p>
--	--	--	--

Workgroup Response

Dear Dr. Benn Smith,

Thank you for your expert review of the Clinical Practice Guideline on the Management of Carpal Tunnel Syndrome. We will address your comments by guideline section in the order that you listed them.

- A. The work group roster is blinded during peer review and public commentary to prevent bias. The final document will contain the roster, along with the detailed disclosures for each member. AAOS policy requires all guideline work group members to remain non-conflicted during the development of the guideline and one year after publication.
- B. The issues related to the role of electrodiagnostic testing as a reference standard for the diagnosis of carpal tunnel syndrome were carefully considered by the Workgroup and also were extensively discussed at our face-to-face meetings and conference calls. A number of important points were established and while there was not unanimous agreement on all of these, there was a clear consensus among the Workgroup members, with the dissent of a single individual. The key considerations are as follows:
 - Despite the dominance in the literature of electrodiagnostic studies as diagnostic or confirmatory tests for CTS, they cannot be considered as a *reference standard* for several reasons; (i) there are clearly false positives and false negatives no matter the way in which the modality is used and regardless of what may be taken as the standard for comparison, including the response to treatment; (ii) there is no consensus among clinicians regarding the results of electrodiagnostic tests as a reference standard. In the absence of a broadly-based, cross-disciplinary consensus about the meaning of any test, including electrodiagnostic testing, it cannot be justified as reference standard; (iii) evidence supporting electrodiagnostic testing as a reference standard, defined as a test without false positives or negatives in comparison to an external standard and on which there is widespread consensus regarding its status as the reference standard, doesn't exist. In fact there are few examples in clinical medicine where a true reference standard meeting these criteria exists but a few examples would include certain (not all) histologic diagnoses and some basic imaging studies, for example plain radiographs in the diagnosis of some skeletal fractures. In the case of CTS there is no clinical, imaging or electrodiagnostic reference standard that meets these criteria.
 - The absence of a reference standard greatly complicates the development of recommendations for the diagnosis of CTS and yet this remains an important goal, especially given the prevalence of the condition and its importance as a source of short-term morbidity among the working population of most industrialized societies. Under these circumstances the most effective and pragmatic approach that could be taken by the Workgroup would be to develop recommendations that take account of the absence of a true reference standard for the diagnosis and still inform, as clearly and with as little bias as possible, clinicians dealing with patients who may have this condition.
 - The transparency and rigor of the guideline development process can, at the least, give insight into what is known about all aspects of the process of diagnosis and treatment of CTS so that clinicians who use the guideline can draw their own conclusions regarding its meaning. It was fully recognized that insurers, among others, may use the information provided in the guideline to come to their own conclusions but in this regard the Workgroup felt that an adherence to the process, combined with a fair and unbiased analysis of the highest quality evidence in the literature would provide, if nothing else, an important starting point for both further discussion and research. This process of guideline development is fully detailed in the document.

With these points in mind the Workgroup respectfully disagree with the reviewer, especially with the idea that important literature was excluded from consideration. Terms like “validated” and “utility” have to be defined themselves within this context. As noted above, the tacit acceptance of electrodiagnostic studies as a reference standard, the extensive volume of existing literature notwithstanding, remains unjustified. Finally, the inclusion of all pertinent literature was confirmed by the Workgroup members, at least two of whom were electrodiagnostic medicine specialists and on this basis we conclude that this was complete.

- C. The role of electrodiagnostic testing as a method to distinguish CTS from other conditions was addressed in the rationale that accompanies the recommendation entitled “Diagnostic scales” (page 220): “While diagnostic scales/questionnaires can be used for the clinical assessment of CTS, they may be unable to exclude other etiologies that could mimic CTS (such as cervical radiculopathy), or identify other disorders (such as polyneuropathy) that may affect the decision making process regarding therapy. Where indicated, appropriate clinical evaluation for alternative diagnoses should be carried out. Electrodiagnostic testing may be of most value when the clinical diagnosis is unclear or when atypical features exist.”
- D. With all due respect, it is not clear what further detail the reviewer would require to accept that this is the patient group for whom the guideline is pertinent. The guideline is intended to help clinicians, from a broad spectrum of clinical backgrounds, evaluate patients with complaints which may be attributable to CTS so that diagnoses can be made and treatments prescribed. This is summarized on page 24:

“Musculoskeletal care is provided in many different settings by many different providers. We created this guideline as an educational tool to guide qualified physicians through a series of treatment decisions in an effort to improve the quality and efficiency of care. This guideline should not be construed as including all proper methods of care or excluding methods of care reasonably directed to obtaining the same results. The ultimate judgment regarding any specific procedure or treatment must be made in light of all circumstances presented by the patient and the needs and resources particular to the locality or institution.”

The specific symptoms and physical examination signs that are evaluated, both as isolated findings and as components of multi-item diagnostic scales are part of the guideline. As for “measures ... recommended to insure (*sic*) that conditions mimicking CTS are excluded”, the reviewer is directed to the response to C. above.

- E. Although many would consider that CTS represents some kind of “injury” it is accepted that this terminology is misleading and conveys an unintended meaning as the reviewer correctly points out. Appropriate revisions to that text will be made.
- F. The concern that the reviewer has here is not clear. The subject of the guideline is the diagnosis and treatment of CTS. The pertinent recommendation states: “Moderate evidence supports that diagnostic questionnaires and/or electrodiagnostic studies could be used to aid the diagnosis of carpal tunnel syndrome.” Clinical diagnostic modalities, in other words aspects of the history and physical examination, are fully evaluated because these are modalities available to all physicians and allied health workers assessing patients. Imaging modalities are also fully reviewed. In that context the role of electrodiagnostic testing as an ancillary diagnostic measure is addressed in the rationale accompanying the recommendation on diagnostic scales, as noted above in the response to C. As the reviewer correctly notes, throughout the document the value of the various clinical evaluations is, in almost all cases, compared to electrodiagnostic findings and, in large measure, this is simply because this is the only way

comparisons have been done so a pragmatic decision has been made to evaluate this literature. This does not confer on electrodiagnostic testing status as a reference standard but only status as a comparator, which has been frequently used in clinical practice. In fact an important advance made by the guideline, and one supported by the best and most recent evidence in the literature is that, used appropriately in the context of a weighted diagnostic scale, these clinical findings perform as well as electrodiagnostic testing. The caveat that electrodiagnostic testing may be useful where there is clinical uncertainty is clearly stated and this is the role that the guideline finds most appropriate for this investigation. The document will be amended to identify this organization by its correct name after 2004.

- G. The approach to establishing the scope of the guideline, which is the main determinant of the literature search, is well described in the document. As noted above much, although not all, of the literature reviewed for assessing the role and importance of the various clinical diagnostic components included comparisons to electrodiagnostic data. The recommendation described above does not exclude electrodiagnostic measures in the diagnosis of CTS – it does the opposite in establishing that these measures can be used together (or even without) clinical evaluations. What is new and clearly supported by the literature is that electrodiagnostic testing is no longer considered to be the only mode of diagnosing CTS.
- H. These concerns have been addressed in the responses made to the similar comments above. It should also be noted that these views are in sharp contrast to those of the reviewer from the American Academy of Neurology whose assessment for use of the guideline in clinical practice was “strongly recommend”.

Respectfully,

2015 CTS Guideline Workgroup

Reviewer #7, Noah Matthew Raizman, MD - American Society for Surgery of the Hand (ASSH)

Reviewer #	Name of Reviewer (Required)	What is the name of the society that you are representing?	Please provide a brief explanation of both your positive responses to the Structured Peer Review Form Questions
7	Noah Matthew Raizman, MD	American Society for Surgery of the Hand (ASSH)	<p>A. The ASSH commends the arduous work and difficult tasks taken up by the CPG Committee. The methodology is clearly described and reproducible, and the document is exhaustively researched. We are proud to have members of our society participating in this work. Most of our criticisms pertain to the structure and wording of the recommendations, as we believe they can be misleading and are prone to misinterpretation. For a sophisticated and scientifically-trained audience, perhaps the awkwardness of phrasing can be parsed in a way that is clear, but this document is very likely to be read by not only orthopedists, but the lay press and media; attorneys, claims adjusters and worker's compensation boards; patients and legislatures.</p> <p>B. Despite two pages of clear explanation on how electrodiagnostics (EDS) are not an appropriate reference standard on pp 219-220, the boldfaced recommendations seem to assume EDS as an appropriate reference standard anyway, and strong conclusions are made with reference to them. There are no specific recommendations involving the use of EDS to diagnose CTS except that hand held devices can be used. I am worried that this reinforces the appearance that EDS are the best reference standard for diagnosis of CTS. Why are electrodiagnostic studies not examined and recommended for-or-against? This seems a glaring omission.</p> <p>C. Honestly, a portion of the discussion on pp 219-220 should be the preamble of the final recommendations. The recommendations with regards to diagnosis read as if tinels, phalens, 2PD, thenar weakness etc are not useful in diagnosis - even if this is not the true implication when reading carefully, this is how it is going to be interpreted on a casual reading. There is no analysis of any of these factors taken together, nor any acknowledgment of the nature of CTS as a SYNDROME, merely statements to the effect that each of these maneuvers alone and in isolation is not useful for diagnosis. We do not see how this is helpful, and in fact it clouds the issue of diagnosis even further.</p> <p>D. To be honest, the concept of diagnosis in CTS remains a shaky one, given that EDS parameters do not necessarily correlate well with either clinical symptoms or response to treatment. Distal motor latency often improves but often does not normalize after carpal tunnel release, and it has a poor-to-modest correlation with subjective improvement after treatment. Despite the widespread criticism of the prior CPG's recommendation to get an EMG/NCS prior to consideration of surgery, this recommendation arose out of frustration with the lack of a reference standard and the subsequent analysis performed by the CPG group that showed that EDS and clinical exam together were far more predictive of response to surgery than were either alone.</p>

- | | | | |
|--|--|--|--|
| | | | <p>E. Understanding the limitations of the literature, we think it is CRUCIAL that the CPG document address the lack of a reference standard clearly and endeavor not to make the diagnosis section unclear to the vast number of people who are going to read the recommendations and nothing else, and to those who do not have the scientific background to read between the lines.</p> <p>F. Our next area of concern is the epidemiology recommendations. The characterization of work environments which have been associated with development of CTS is not adequate, and having a recommendation claim that computer work is associated with CTS without qualification until you read fine print 400 pages later is likely to cause a lot of problems and adverse media coverage. The implications for workers compensation legislation and adjudication are profound and could easily represent hundreds of millions of dollars of claims, if not billions. The way the recommendations are worded with regards to computer use is simplistic and is extremely likely to be misinterpreted. The factors that the CPG analysis suggests may be risk factors for CTS should not be lumped into a group of a dozen. They should be qualified either individually or in smaller groups and the work environments characterized more fully. Please see below for some specific comments regarding this.</p> <p>G. Another case where the simplicity of the phrasing of the recommendations is inadequate is the discussion of steroid injections. Clearly, the preponderance of the evidence shows short term improvement in subjective outcomes. There is no qualification in the recommendations that steroids improve short term outcomes but are far less likely to provide longer term relief.</p> <p>H. One of our reviewers from the Evidence-Based Practice Committee had the following specific criticisms as well: Line 1661-3 is confusing as written. It seems there were 3 clinical diagnostic tests assessed? These should be mentioned above and in summary. 1661-3 there were two clinical diagnostic tests studied in high quality investigations, the Katz Hand Diagram and the CTS-6. The Boston Carpal Tunnel Scale, a status instrument most frequently used to measure outcomes of treatment for CTS was also evaluated in two high quality studies.</p> <p>I. Line 1787 is controversial and it might help to make it very clear- this is moderate to high force (in summary). Data feels softer than what is summarized. 1787 High hand/wrist repetition rate at work was significantly associated to an increased risk of CTS by two high quality (Armstrong, 2008; Evanoff, 2014) and four moderate quality studies (Chiang, 1990; Coggon, 1788 2013; Goodson, 2014; Silverstein, 1987). In all studies, the hand/wrist repetition involved moderate to high hand forces. One of the high quality studies (Armstrong, 2008) showed an insignificant association in two of the categories of repetition, but still showed a significant increase between the high and low quartile categories.</p> <p>J. The data on typing seems soft (lines 1828-). What about other studies that show opposite (here are a few) -Andersen JH, Thomsen JF, Overgaard E, et al. Computer use and carpal</p> |
|--|--|--|--|

			<p>tunnel syndrome: a 1-year follow-up study. The Journal of the American Medical Association 2003. -Stevens JC, Witt JC, Smith BE, Weaver AL. The frequency of carpal tunnel syndrome in computer users at a medical facility. Neurology 2001. -Nordstrom DL, Vierkant RA, Layde PM, Smith MJ. Comparison of self-reported and expert-observed physical activities at work in a general population. American Journal of Industrial Medicine 1998; 18:28 Computer work was significantly associated with increased risk of CTS by three moderate quality studies (Ali, 2006; Coggon, 2013; Eletheriou, 2012). One study found an increased association with an average of greater than eight hours of computer use per day and more than four years of computer work (Ali, 1830 2006). Another study found an association between an increased risk of CTS and working on a keyboard or mouse for more than four hours per day (Coggon, 2013). The third study found an association with a very high number of keystrokes typed per year and a higher risk of CTS (Eletheriou, 2012). There was one moderate quality study (Ali, 2006) evaluating internet use for leisure, which also found a significant result for increasing risk of CTS. 4)</p> <p>K. 2380 Steroid injections. Doesn't the conclusion need a time limited qualifier? Yes, studies support injection as temporary improvement (with rare thought that injection can obviate need for surgery). This corresponds to line 2725 recommending surgery over injection</p> <p>L. Unilateral vs Bilateral CTR. Line 3001. What about Osei, JBJS 2014?</p> <p>M. The representatives of the ASSH who reviewed this document cannot recommend these guidelines as currently articulated. We believe that some substantial revisions are necessary, not in the overall methodology, but in the formulation and presentation of the recommendations, given their profound implications for both clinical practice and the medicolegal environment in which we practice.</p>
--	--	--	--

Workgroup Response

Dear Dr. Noah Matthew Raizman, MD,

Thank you for your expert review of the Clinical Practice Guideline on the Management of Carpal Tunnel Syndrome. We will address your comments by guideline section in the order that you listed them.

- A. The language used to articulate the recommendations is dictated by the AAOS Guideline Language Stems. These are described in Table 2, page 34 of the draft document. While it is understood that the terminology used may be confusing or easily misconstrued, this risk is superseded by the need for consistency and uniformity in all of the AAOS guidelines. Members of the Workgroup are committed to discussing the recommendations with the organizations that they represent in order to ensure that the risk of misunderstanding is minimized. The ASSH was represented by three Workgroup members and an ASSH member was also present as the representative from the AAOS oversight group. These individuals will be important resources for disseminating the recommendations among the ASSH membership and discussing their meaning. As for other entities to which the reviewer refers – “the lay press and media; attorneys, claims adjusters and worker's compensation boards” – it is understood that there is a risk of using the recommendations in unintended ways to meet their specific needs. It will be the responsibility of individual users of the guideline to resist this by promoting the guideline as the best distillation of the evidence available on this topic. This will be an ongoing process requiring a protracted and consistent effort by clinicians who treat this condition.

- B. The guideline is not intended to establish the reference standard for this diagnosis, nor can it do this because the literature remains incomplete with respect to this question. The overwhelming majority of the existing literature on the topic of diagnosis of carpal tunnel syndrome assumes that electrodiagnostic studies are the reference standard, a point of view with which the Workgroup did not agree. Nonetheless, a pragmatic view of this issue was taken so that the existing literature could be assessed. It was accepted that while electrodiagnostic testing was not a reference standard it could be used as a comparator for other diagnostic strategies and it was from this point of view that this literature was evaluated. Pages 219-253 describe the analysis of diagnostic scales and states: “Moderate evidence supports that diagnostic questionnaires and/or electrodiagnostic studies could be used to aid the diagnosis of carpal tunnel syndrome”. This statement essentially equates the role of clinical evaluation and electrodiagnostic testing in the diagnosis of carpal tunnel syndrome and is fully consistent with the highest level of evidence that was available, which was judged to be “moderate” in its quality. In this context there is no clear need to make a definitive statement regarding the superiority of one approach over the other, nor is there literature to support that in any event. The Workgroup believes that, consistent with the literature reviewed, clinicians can make a choice whether to use diagnostic scales, electrodiagnostic testing or both to make a diagnosis of carpal tunnel syndrome. This is a very substantial change from recommendations made in the previous guideline.

- C. The preamble for the guideline is based on a template used for all AAOS clinical practice guidelines. Each recommendation is accompanied by a rationale which describes the most important publications considered in developing the recommendation. The rationale on pages 219-220 describe the complex issue of a reference standard and this is the appropriate place for this discussion. The need for establishing a diagnostic reference standard is referred to repeatedly throughout the document in the sections on “Future Research”. This is also stated in the preamble on page 26.

The reviewer’s interpretation of the guideline statements about “tinels, phalens, 2PD, thenar weakness etc are not useful in diagnosis - even if this is not the true implication” is not entirely accurate. The recommendation states: “Strong evidence supports not using the Phalen Test, Tinel Sign, Flick Sign, or

Upper limb neurodynamic/nerve tension test (ULNT) criterion A/B as independent physical examination maneuvers to diagnose carpal tunnel syndrome, because alone, each has a poor or weak association with ruling-in or ruling-out carpal tunnel syndrome”. This is an accurate reflection of the available literature on this topic, which by and large used electrodiagnostic testing as the comparator. Temporarily leaving aside the issue of electrodiagnostic testing as a reference standard, the recommendation emphasizes that these tests are not useful when used *alone*. Testing the sensitivity and specificity of these physical examination maneuvers as individual entities is how the majority of these studies were done and yet it is clear that this is not how they would be used in clinical practice. This is why there was a PICO question posed about the role of diagnostic scales, which combine findings from the history and physical examination to come to a diagnostic conclusion. The recommendation regarding diagnostic scales is clear and places these on the same level as electrodiagnostic testing, which represents a substantial paradigm shift in the diagnosis of carpal tunnel syndrome.

- D. These points have been addressed in the responses made above. Hopefully these responses clarify this issue for the reviewer.
- E. Beyond making suggestions about the direction further research might take, the scope of the guideline activity does not include addressing the question of a suitable reference standard. The guideline can only focus on the available literature and make the best recommendations possible based on that information. The obstacle posed by the absence of a true reference standard is clear and has been identified in the document but nothing more can be done about this issue until researchers in the field take on this challenge. In fact the absence of a reference standard is a significant concern for many orthopedic conditions and for many disease entities outside of orthopedic surgery as well. In many ways it amounts to an important philosophic question which has received surprisingly little attention up until now.
- F. Once again, all that can be stated in response to this point is that the recommendations reflect evidence that was found in the literature. The Workgroup concurs that there could be substantial ramifications for both physicians and patients with respect to workers’ compensation. Unfortunately, its size notwithstanding, the guideline document can only be properly utilized in its entirety. It is fully recognized that special interests may misinterpret some of the recommendations by placing an inappropriate focus on specific aspects of the document to support a particular viewpoint. The complexity of the whole undertaking, and the attempt to make it as transparent as possible, have the unintended, but unavoidable, effect of making the document as large as it is and so some important details can be seemingly lost. Where these details are important clinicians and other users have a responsibility to ensure that they receive the same recognition as those that a special interest may try to emphasize.

Where associations with carpal tunnel syndrome were found for certain workplace exposures, the literature cited was rated, in most instances, as “high” or “moderate”, partly because of the use of objective measures of the exposure such as the ACGIH Hand Activity Level or clear definitions of what comprised “computer work”. The rationale for this recommendation does describe the specific exposures and the supporting literature without these being “lumped into a group of a dozen”. The specific work environments may have been described in some of these papers but the conclusions were focused on the general class of work hence the recommendations regarding these general work exposures.

- G. Page 28 of the guideline explicitly states that the minimum follow-up to be reported in all studies of non-operative treatment was one month. Studies of operative management had to have at least three months of follow-up. The interpretation of these recommendations, for both operative and non-operative management should be made with these factors in mind. The simple fact is that, given the nature of carpal tunnel syndrome, very few studies in the literature have lengthy follow-up and it has been established that results, at least after surgical treatment do not change after 6 months. On this basis, and in order to avoid excluding methodologically strong studies testing non-operative treatments against placebo treatments, this standard for follow-up was agreed to by the Workgroup members. Once again it has to be emphasized that users of the guideline should read all pertinent components to avoid misunderstanding the recommendations. The language used in the recommendations themselves is determined by the PICO questions posed by the Workgroup at the outset of the exercise and by the specific terminology used in all AAOS guidelines. As for the assertion that the effect of both local and systemic steroids are limited to the short-term, this is clearly described on pages 501-2 in the rationale accompanying this recommendation.
- H. These lines accurately describe the Katz diagram and the CTS-6 as diagnostic scales and the Boston Carpal Tunnel Syndrome scale as a status instrument. The meaning is that the first two instruments were devised to function as approaches to diagnosis. The Boston Carpal Tunnel Syndrome scale has a different function. Although it is sometimes incorrectly used as a diagnostic scale, it is actually intended to be a measure of symptom severity and it is most appropriately used as an indicator of treatment efficacy, not disease diagnosis, hence its designation as a status instrument.
- I. If this data “feels softer” this may not be accurate impression. There were six studies – two high quality and four moderate quality – supporting this recommendation.
- J. Response
- K. All of these articles were considered and then deleted for various methodologic deficiencies: the Andersen article was excluded because carpal tunnel syndrome was not actually diagnosed in any of the patients. Their evaluation was of the relationship between self-reported symptoms of possible carpal tunnel syndrome and office work exposures. In other words, this study did not assess risk factors in patients with a clear diagnosis of carpal tunnel syndrome. The Stevens study only had 9 patients that were diagnosed with carpal tunnel syndrome. It was not considered because there were fewer than 10 patients evaluated, the minimum sample size required for inclusion. The Nordstrom article was not included because it was a case-control study evaluating correlation coefficients between patient and physician estimates of risk factor exposure rather than the relationship between diagnosed carpal tunnel syndrome and risk factors. These were the standards used to evaluate study quality and they were not met by these papers.
- L. As described above, this point is addressed in the rationale accompanying this recommendation.
- M. The follow-up in this study was less than three months and so it did not meet the criteria for inclusion as a surgical study. These had to have at least three months follow-up.

Respectfully,

2015 CTS Guideline Workgroup

Public Comment Submissions

Public Comment Disclosure Information

Reviewer Number	Name of Reviewer (Required)	Please list your AAOS Customer # below (Required):
1	Jesse Jupiter, MD	17942
2	David Ring, MD, PhD	136145
3	Steven Henry, MD	No conflicts listed

To review disclosures of submissions with an AAOS customer ID, please visit:

<http://www7.aaos.org/education/disclosure/search.aspx>

Public Comment Responses to Structured Public Comment Form Questions

All public commenters are asked 16 structured peer review questions which have been adapted from the Appraisal of Guidelines for Research and Evaluation (AGREE) II Criteria*. Their responses to these questions are listed on the next few pages.

Table 9. Peer Reviewer Responses to Structured Peer Review Questions 1-4

Reviewer #	Name of Reviewer (Required)	What is the name of the society that you are representing?	1. The overall objective(s) of the guideline is (are) specifically described.	2. The health question(s) covered by the guideline is (are) specifically described.	3. The guideline's target audience is clearly described.	4. There is an explicit link between the recommendations and the supporting evidence.
1	Jesse Jupiter, MD	American Shoulder and Elbow Surgeons	Agree	Agree	Agree	Agree
2	David Ring, MD, PhD		Neutral	Agree	Agree	Disagree
3	Steven Henry, MD		Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree

Table 10. Peer Reviewer Responses to Structured Peer Review Questions 5-8

Reviewer #	Name of Reviewer (Required)	What is the name of the society that you are representing?	5. Given the nature of the topic and the data, all clinically important outcomes are considered.	6. The patients to whom this guideline is meant to apply are specifically described.	7. The criteria used to select articles for inclusion are appropriate.	8. The reasons why some studies were excluded are clearly described.
1	Jesse Jupiter, MD	American Shoulder and Elbow Surgeons	Agree	Agree	Agree	Agree
2	David Ring, MD, PhD		Disagree	Disagree	Disagree	Neutral
3	Steven Henry, MD		Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree

Table 11. Peer Reviewer Responses to Structured Peer Review Questions 9-12

Reviewer #	Name of Reviewer (Required)	What is the name of the society that you are representing?	9. All important studies that met the article inclusion criteria are included.	10. The validity of the studies is appropriately appraised.	11. The methods are described in such a way as to be reproducible.	12. The statistical methods are appropriate to the material and the objectives of this guideline.
1	Jesse Jupiter, MD	American Shoulder and Elbow Surgeons	Agree	Agree	Agree	Agree
2	David Ring, MD, PhD		Neutral	Strongly Disagree	Neutral	Neutral
3	Steven Henry, MD		Agree	Strongly Agree	Strongly Agree	Strongly Agree

Table 12. Peer Reviewer Responses to Structured Peer Review Questions 13-16

Reviewer #	Name of Reviewer (Required)	What is the name of the society that you are representing?	13. Important parameters (e.g., setting, study population, study design) that could affect study results are systematically addressed.	14. Health benefits, side effects, and risks are adequately addressed.	15. The writing style is appropriate for health care professionals.	16. The grades assigned to each recommendation are appropriate.
1	Jesse Jupiter, MD	American Shoulder and Elbow Surgeons	Agree	Agree	Agree	Agree
2	David Ring, MD, PhD		Strongly Disagree	Strongly Disagree	Agree	Strongly Disagree
3	Steven Henry, MD		Strongly Agree	Strongly Agree	Strongly Agree	Strongly Agree

Table 13. Public Commenter’s Recommendation for Use of this Guideline in Clinical Practice

Would you recommend these guidelines for use in clinical practice?

Reviewer #	Name of Reviewer (Required)	What is the name of the society that you are representing?	Would you recommend these guidelines for use in clinical practice?
1	Jesse Jupiter, MD	American Shoulder and Elbow Surgeons	Recommend
2	David Ring, MD, PhD		Would Not Recommend
3	Steven Henry, MD		Recommend With Revisions

Public Commenter Detailed Responses

Submitter #2, David Ring, MD, PhD

There are several factors that make it difficult to study carpal tunnel syndrome: 1. Lack of a consensus reference standard for diagnosis. 2. Confusion with wrist pain, activity related pain, and other illnesses that may not be related to median nerve dysfunction. 3. Uncertainty regarding whether this is a permanent and progressive disease (like hypertension) or a transient disease (like most enthesopathies). 4. Inadequate distinction between palliation and disease modification treatment (for instance a palliative treatment such a night splinting is considered in the same like as a disease-modifying treatment such as division of the transverse carpal ligament). The stakes are high with carpal tunnel syndrome, particularly where etiology is concerned, but also with respect to treatments. 1. Inaccurate or poorly presented concepts about causation can create or contribute to epidemic illness. In other words, how we talk about diseases influences health both at the personal and societal level. We need to be very thoughtful and measured in the presentation of the data--particularly any evidence related to etiology. The epidemic of "repetitive strain injury" in Australia is a recent example among many, and the confusion of RSI with CTS has created problems that we have not resolved to this day. 2. Treatments that have not proved better than placebo--particularly treatments that are at best palliative--have several disadvantages: A. With no benefit there is only risk; B. One of the greatest risks is a poor investment of hope; C. An opportunity for growing self-efficacy is lost. The biomedical model is reinforced and patients continue to look for external treatments that will cure them rather than learning what they can do for themselves; D. There is substantial risk of making an error in diagnosis of preference. Patients want something done, but if they truly understood that what was happening was a change in their mind and brain and not in the wrist or nerve, they might make a different choice. With these principles in mind, I strongly urge you to omit anything addressing etiology. Etiology is very difficult to study scientifically. When we reviewed the existing data for epigenetic factors it was low quality when judged by the Bradford Hill criteria and it was inconsistent. Many of the studies looking at associations make an inappropriate leap to causation. One major issue is the lack of a consensus reference standard for diagnosis of CTS. Studies where patients that have pain with hand use are diagnosed with carpal tunnel syndrome are likely to show a much stronger association than studies that look at measurable neuropathology (such as the Atroshi study that found that typing might actually be protective). The way the questions are phrased shows the bias' of the task force members. For instance, the question about steroids does not ask if they are better than placebo. But the other nonoperative treatments are compared to placebo. None of the questions about nonoperative treatments addresses their ability to alter the natural course of the disease. In addition to removing any questions about etiology, you can place the other material in the context I have outlined above.

Submitter #3, Steven Henry, MD

This is a remarkably thorough document--kudos to all who contributed to this impressive effort. The methodology is so rigorous, there really isn't much to add. My only suggestion: The document lists all of the history and exam findings that, in isolation, do not necessarily support the diagnosis of CTS. However, the reader may be left with the impression that there is no scientific value at all in those history and exam items, when there likely is clinical value when all of those items are taken together. The paper does later note that there is insufficient data to prove or disprove the value of those items taken together; I would suggest that this point be made BEFORE listing all of the individual items.

Appendix A – Structured Peer Review/Public Comment Form

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1. The overall objective(s) of the guideline is (are) specifically described.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. The health question(s) covered by the guideline is (are) specifically described.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. The guideline's target audience is clearly described.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. The guideline development group includes individuals from all the relevant professional groups.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. There is an explicit link between the recommendations and the supporting evidence.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. Given the nature of the topic and the data, all clinically important outcomes are considered.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. The patients to whom this guideline is meant to apply are specifically described.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. The criteria used to select articles for inclusion are appropriate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. The reasons why some studies were excluded are clearly described.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. All important studies that met the article inclusion criteria are included.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. The validity of the studies is appropriately appraised.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. The methods are described in such a way as to be reproducible.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. The statistical methods are appropriate to the material and the objectives of this guideline.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Important parameters (e.g., setting, study population, study design) that could affect study results are systematically addressed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Health benefits, side effects, and risks are adequately addressed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. The writing style is appropriate for health care professionals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. The grades assigned to each recommendation are appropriate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please provide a brief explanation of both your positive and negative answers in the preceding section. If applicable, please specify the draft page and line numbers in your comments. Please feel free to also comment on the overall structure and content of the Guideline.

Would you recommend these guidelines for use in clinical practice?*

- Strongly Recommend
- Recommend
- Would Not Recommend
- Unsure

Additional Comments: