



Complete Summary

GUIDELINE TITLE

Literature review: nervepace digital electroneurometer in the diagnosis of carpal tunnel syndrome.

BIBLIOGRAPHIC SOURCE(S)

David WS, Chaudhry V, Dubin AH, Shields RW Jr. Literature review: nervepace digital electroneurometer in the diagnosis of carpal tunnel syndrome. Muscle Nerve 2003 Mar;27(3):378-85. [13 references] [PubMed](#)

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE
METHODOLOGY - including Rating Scheme and Cost Analysis
RECOMMENDATIONS
EVIDENCE SUPPORTING THE RECOMMENDATIONS
BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS
QUALIFYING STATEMENTS
IMPLEMENTATION OF THE GUIDELINE
INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT
CATEGORIES
IDENTIFYING INFORMATION AND AVAILABILITY
DISCLAIMER

SCOPE

DISEASE/CONDITION(S)

Carpal tunnel syndrome (CTS)

GUIDELINE CATEGORY

Diagnosis
Technology Assessment

CLINICAL SPECIALTY

Neurology

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To offer the opinion of the American Association of Electrodiagnostic Medicine (AAEM) regarding what the current literature reveals with respect to the clinical utility of the Nervepace Digital Electroneurometer (NDE) in the diagnosis and treatment of carpal tunnel syndrome (CTS)

TARGET POPULATION

Patients with suspected carpal tunnel syndrome (CTS)

INTERVENTIONS AND PRACTICES CONSIDERED

Use of the following diagnostic devices to assess carpal tunnel syndrome:

1. Nervepace Digital Electroneurometer (NDE)
2. Neurosentinel (NS)

Note: The American Association of Electrodiagnostic Medicine (AAEM) concludes that the current literature does not support the substitution of the Nervepace Digital Electroneurometer and Neurosentinel for standard electrodiagnostic studies in the clinical evaluation of patients with carpal tunnel syndrome (CTS).

MAJOR OUTCOMES CONSIDERED

Reliability (sensitivity and specificity) of Nervepace Digital Electroneurometer (NDE) and Neurosentinel (NS) in clinical evaluation of patients with suspected carpal tunnel syndrome (CTS)

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

At the time of the original review, five reports, all dealing with the nervepace digital electroneurometer (NDE)'s usefulness in diagnosing carpal tunnel syndrome (CTS), were available for review. In the present updated review, an expanded literature search was performed using PubMed and the dates 1966 to 2001. The search for literature included only articles written in English. The following search terms were used: "electroneurometer," "NervePace," "Nervepace Digital Electroneurometer." This repeat search generated seven additional articles not included in the original review. One article was rejected as it principally dealt with evaluation of a different novel technique, employing the NDE only as a minor adjunct, without specific assessment of the utility of the NDE. An analysis of the remaining six articles was incorporated into the original review, which forms the content of present literature review. An additional search was conducted in July

2002 using PubMed (1966 to 2002) utilizing the original search terms and adding the search term "neurosentinel". No new articles were identified.

NUMBER OF SOURCE DOCUMENTS

5 source documents were identified for the original review and 6 additional articles were identified for the present updated review

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

All reports were evaluated by the authors utilizing the six criteria for classification of CTS literature used by the American Association of Electrodiagnostic Medicine (AAEM), American Academy of Neurology, and American Academy of Physical Medicine and Rehabilitation in developing a Practice Parameter related to the electrodiagnosis of CTS. The criteria are:

1. Prospective study
2. Clinical diagnosis of CTS independent of the results of electrodiagnostic studies
3. Sufficiently detailed description of the stimulating and recording methods to permit duplication of the studies
4. Limb temperature monitored and reported
5. Reference values:
 - a. Obtained either with concomitant studies of a reference population, or
 - b. Obtained with previous but identical studies of a reference population in the same laboratory and
 - c. Reported in the article
6. The cited article mentioned the criteria of abnormality obtained from the reference population and the article defined this in statistical terms such as mean, standard deviation, and/or range.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Not stated

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The guideline was approved by the American Association of Electrodiagnostic Medicine (AAEM) Board in July 2002.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

It is the opinion of the American Association of Electrodiagnostic Medicine (AAEM) that all of the literature reviewed and describing the nervepace digital electroneurometer (NDE) and neurosentinel (NS) are flawed. Limb temperature, which affects the speed of nerve conduction, was controlled in only one study. In most reports, reference populations were not studied to provide a scientifically based source for control values. Standard statistical measures of latency values (mean, standard deviation, and range) were not specified in most reports. Moreover, most studies comparing NDE and NS to standard nerve conduction studies (NCSs) make an incorrect assumption: that distal motor latency or an isolated digital sensory latency value are sensitive measures for diagnosing median nerve entrapment at the wrist. In fact, detailed sensory NCSs, including segmental stimulation across the palm-to-wrist segment or in comparison to adjacent sensory nerves, is by far the more sensitive technique in this regard and is probably the earliest finding in median nerve entrapment at the wrist.

It is the opinion of the AAEM that the NDE, as well as the newer NS, are experimental and are not effective substitutes for standard electrodiagnostic studies in clinical evaluation of patients with suspected CTS. For more details refer to the "Critique of the Technology" section in the original guideline document.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The recommendations are based on a critical review of the current scientific and clinical information.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

The information provided in the literature review will aid physicians in choosing appropriate electrodiagnostic procedures in patients with carpal tunnel syndrome.

POTENTIAL HARMS

Not stated

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

This report is provided as an educational service of the American Association of Electrodiagnostic Medicine (AAEM) and is provided for informational purposes only. It is based on an assessment of the current scientific and clinical information. It is not intended to include all possible methods of care of a particular clinical problem, or all legitimate criteria for choosing to use a specific procedure. Neither is it intended to exclude any reasonable alternative methodologies. It addresses the use of the nervepace digital electroneurometer (NDE) in the diagnosis of carpal tunnel syndrome (CTS). This statement is not intended to address all uses of the NDE. The AAEM recognizes that specific patient care decisions are the prerogative of the patient and his/her physician and are based on all of the circumstances involved. This review was not written with the intent that it be used as a basis for reimbursement decisions.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

David WS, Chaudhry V, Dubin AH, Shields RW Jr. Literature review: nervepace digital electroneurometer in the diagnosis of carpal tunnel syndrome. *Muscle Nerve* 2003 Mar;27(3):378-85. [13 references] [PubMed](#)

ADAPTATION

Not applicable: Guideline was not adapted from another source.

DATE RELEASED

2003 Mar

GUIDELINE DEVELOPER(S)

American Association of Neuromuscular and Electrodiagnostic Medicine - Medical Specialty Society

SOURCE(S) OF FUNDING

American Association of Neuromuscular and Electrodiagnostic Medicine (AANEM)

GUIDELINE COMMITTEE

Not stated

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Primary Authors: William S. David, MD, PhD; Vinay Chaudhry, MD; Andrew H. Dubin, MD, MS; Robert W. Shields, Jr., MD

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available from the American Association of Neuromuscular and Electrodiagnostic Medicine (AANEM) for members only.

Print copies: Available from AANEM. To obtain an order form, please contact the Education Department at the AANEM Executive Office, 421 First Ave SW, Suite

300 E, Rochester, MN 55902; Telephone: (507) 288-0100; fax, (507) 288-1225; e-mail: aanem@aanem.net. The order form is also posted on the [AANEM Web site](#).

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on December 1, 2003.

COPYRIGHT STATEMENT

This document is provided as an educational service by the American Association of Neuromuscular and Electrodiagnostic Medicine (AANEM). It was developed by members of the AAEM and approved by the AAEM Board of Directors. For further information, visit the [AANEM Web site](#).

DISCLAIMER

NGC DISCLAIMER

The National Guideline Clearinghouse™ (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria which may be found at <http://www.guideline.gov/about/inclusion.aspx>.

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.

© 1998-2008 National Guideline Clearinghouse

Date Modified: 11/3/2008

