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Notice of Independent Review Decision

DATE OF REVIEW:
03/20/2009

IRO CASE #:

DESCRIPTION OF THE SERVICE OR SERVICES IN DISPUTE
Left endoscopic carpal tunnel release.

A DESCRIPTION OF THE QUALIFICATIONS FOR EACH PHYSICIAN OR OTHER HEALTH CARE PROVIDER WHO REVIEWED THE DECISION
Board Certified Orthopaedic Surgeon

REVIEW OUTCOME
Upon independent review the reviewer finds that the previous adverse determination/adverse determinations should be: **Upheld**

Provide a description of the review outcome that clearly states whether or not medical necessity exists for each of the health care services in dispute.
The request for left endoscopic carpal tunnel release (CTR) is not medically necessary.

INFORMATION PROVIDED TO THE IRO FOR REVIEW
- TDI/DIVISION OF WORKERS' COMPENSATION referral form
- 03/12/09 Work Comp Fed Ex Request
- 03/11/09 MCMC Referral
- 03/11/09 Notice To Utilization Review Agent Of Assignment, , DWC
- 03/11/09 Notice To MCMC, LLC Of Case Assignment, , DWC
- 03/10/09 Confirmation of Receipt of A Request For A Review, DWC
- 03/06/09 Request For A Review By An Independent Review Organization
- 03/05/09 Utilization Review letter, RN, TPA
- 03/05/09 Physician Advisor Report, , M.D.,
- 02/23/09 Utilization Review letter, , RN, TPA
- 02/23/09 Physician Advisor Report, , M.D.,
- 02/19/09 Fax cover sheet with note
- 02/17/09 Surgery Orders, , M.D.,
- 02/12/09 Office Visit, , M.D.,
- 01/02/09 Utilization Review letter, RN, TPA
- 01/02/09 Physician Advisor Report, M.D.,
- 12/30/08 Patient Profile
- 12/30/08 Fax cover sheet with note
- 12/29/08 Patient Profile

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- 12/29/08 Fax cover sheet with note
- 12/19/08 Office Visit – Diagnostic Testing Results, , M.D.,
- 12/18/08 Office Visit – Diagnostic Testing Results, M.D.,
- 12/18/08 Surgery Orders
- 12/16/08 Office Visit – EMG, , M.D.,
- 12/01/08 Office Visit, , M.D.,
- 10/15/08 Office Visit, , M.D.,
- 10/02/08 Office Visit, , M.D.,
- 09/03/08 Office Visit, , M.D.,
- 08/04/08 Office Visit, ,
- 03/10/08 Online Application for Requesting A Review, DWC
- Note: Carrier did not supply ODG Guidelines.

PATIENT CLINICAL HISTORY [SUMMARY]:
The injured individual is male who complained of bilateral hand pain. The first evaluation reviewed was an examination performed by M.D. on 08/04/2008. His diagnosis was bilateral carpal tunnel syndrome. He noted the original injury was on xx/xx/xx. He reported the mechanism of injury as repetitive typing. Past medical history is significant for obesity, diabetes mellitus, and previous left carpal tunnel surgery in 2006. The injured individual is treated over the ensuing time with splints and injections. His examinations are confusing in that at various times he documented numbness and tingling in the left small and ring fingers which is not typically consistent with CTS. M.D. performed electrodiagnostic testing which was normal on the right side and showed only slight delay of the median nerve motor latency across the wrist. Dr. only other positive findings were Durkin's and carpal tunnel compression. His notes at different times recommend a right or left endoscopic carpal tunnel release.

ANALYSIS AND EXPLANATION OF THE DECISION INCLUDE CLINICAL BASIS, FINDINGS AND CONCLUSIONS USED TO SUPPORT THE DECISION.
The injured individual is female reported to have bilateral hand pain. The alleged original mechanism of injury back on xx/xx/xx was repetitive typing. She has also undergone a left carpal tunnel release in 2006. Her examination and diagnosis of bilateral carpal tunnel syndrome (CTS) is unclear at best with symptoms including her small and ring fingers (ulnar nerve) and elbow.

The Official Disability Guidelines criteria;
ODG Indications for Surgery -- Carpal Tunnel Release:
I. Severe CTS, requiring ALL of the following:
    A. Symptoms/findings of severe CTS, requiring ALL of the following:
        1. Muscle atrophy, severe weakness of thenar muscles
        2. 2-point discrimination test > 6 mm
    B. Positive electrodiagnostic testing
    --- OR ---
II. Mild/moderate CTS, requiring ALL of the following:
    A. Symptoms (pain/numbness/paresthesia/impaired dexterity), requiring TWO of the following:
        1. Abnormal Katz hand diagram scores

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2. Nocturnal symptoms
3. Flick sign (shaking hand)

B. Findings by physical exam, requiring TWO of the following:
1. Compression test
2. Semmes-Weinstein monofilament test
3. Phalen sign
4. Tinel's sign
5. Decreased 2-point discrimination
6. Mild thenar weakness (thumb abduction)

C. Comorbidities: no current pregnancy

D. Initial conservative treatment, requiring THREE of the following:
1. Activity modification >= 1 month
2. Night wrist splint >= 1 month
3. Nonprescription analgesia (i.e., acetaminophen)
4. Home exercise training (provided by physician, healthcare provider or therapist)
5. Successful initial outcome from corticosteroid injection trial (optional)

E. Positive electrodiagnostic testing [note that successful outcomes from injection trial or conservative treatment may affect test results] (Hagebeuk, 2004)

The injured individual does not meet the criteria as outlined above.

Recommended after an accurate diagnosis of moderate or severe CTS: Surgery is not generally initially indicated for mild CTS, unless symptoms persist after conservative treatment. See Severity definitions. Carpal tunnel release is well supported, both open and endoscopic (with proper surgeon training), assuming the diagnosis of CTS is correct. (Unfortunately, many CTR surgeries are performed on patients without a correct diagnosis of CTS, and these surgeries do not have successful outcomes.) Outcomes in workers' comp cases may not be as good as outcomes overall, but studies still support the benefits from surgery. Carpal tunnel syndrome may be treated initially with education, activity modification, medications and night splints before injection is considered, except in the case of severe CTS (thenar muscle atrophy and constant paresthesias in the median innervated digits), but outcomes from carpal tunnel surgery justify prompt referral for surgery in moderate to severe cases. Nevertheless, surgery should not be performed until the diagnosis of CTS is made by history, physical examination and possible electrodiagnostic studies. Symptomatic relief from a cortisone/anesthetic injection will facilitate the diagnosis, however the benefit from these injections although good is short-lived. Surgical decompression of the median nerve usually has a high rate of long-term success in relieving symptoms, with many studies showing success in over 90% of patients where the diagnosis of CTS has been confirmed by electrodiagnostic testing. (Patients with the mildest symptoms display the poorest post-surgery results, but in patients with moderate or severe CTS, the outcomes from surgery are better than splinting.) Carpal tunnel syndrome should be confirmed by positive findings on clinical examination and may be supported by nerve conduction tests before surgery is undertaken. Mild CTS with normal electrodiagnostic studies (EDS) exists, but moderate or severe CTS with normal EDS is very rare. Positive EDS in asymptomatic individuals is not CTS. Any contributions to symptoms by cervical radiculopathy (double crush syndrome) will not be relieved by the surgery. (Various references listed under “Surgical Considerations”) (Chung, 1998) (Verdugo, 2002) (Shin, 2000) (AHRQ, 2003) (Lyall, 2002) (Gerritsen-JAMA, 2002) (Verdugo-

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Cochrane, 2003) (Hui, 2004) (Hui, 2005) (Bilic, 2006) (Atroshi, 2006) (Ucan, 2006) Being depressed and a workers' compensation claimant predicts being out of work after carpal tunnel release surgery. This highlights the importance of psychosocial management of musculoskeletal disorders. (Amick, 2004) (Karjalainen-Cochrane, 2002) (Crossman, 2001) (Denniston, 2001) (Feuerstein, 1999) Older age should not be a contraindication to CTR. (Weber, 2005) (Hobby2, 2005) In a sample of patients aged 70 years and older, patient satisfaction was 93 percent after surgical treatment versus 54 percent after nonsurgical treatment. (Ettema, 2006) Mini palm technique may be as good or better than endoscopic or open release. (Melhorn, 1994) (Cellocco, 2005) Steroid injections and wrist splinting may be effective for relief of CTS symptoms but the benefit decreases over time. Symptom duration of less than 3 months and absence of sensory impairment at presentation are predictive of an improved response to conservative treatment. Selected patients presenting with mild to moderate carpal tunnel syndrome (i.e., with no thenar wasting or obvious underlying cause) may receive either a steroid injection or wear a wrist night splint for 3 weeks. This will allow identification of the patients who respond well to conservative therapy and do not need surgery. (Graham, 2004) (Ly-Pen, 2005) See Injections. While diabetes is a risk factor for CTS, patients with diabetes have the same probability of positive surgical outcome as patients with idiopathic CTS. (Mondelli, 2004) Statistical evaluation identified five factors which were important in predicting lack of response to conservative treatment versus surgery: (1) age over 50 years; (2) duration over ten months; (3) constant paranesthesia; (4) stenosing flexor tenosynovitis; & (5) a Phalen's test positive in less than 30 seconds. When none of these factors was present, 66% of patients were improved by medical therapy, 40% were improved with one factor, 17% were improved with two factors, and 7% were improved with three factors, and no patient with four or five factors present was cured by medical management. (Kaplan, 1990) Operative treatment was undertaken for 31% of new presentations of carpal tunnel syndrome in 2000. (Latinovic, 2006) In the treatment of carpal tunnel syndrome, decompression surgery produces a better long-term outcome than local corticosteroid injections, according to data presented at the American College of Rheumatology meeting. At 1 year, the results showed that local corticosteroid injection was as effective as decompression surgery; however, at 7 years, the estimated accumulated incidence of therapeutic failure in the corticosteroid group was 41.8% compared with 11.6% in the surgery group, because the effects of corticosteroid injections fade with time. (Ly-Pen, 2007)

Endoscopic surgery: Recommended as an optional surgical technique. A Cochrane review concluded that there is no strong evidence that existing alternative surgical procedures for the treatment of carpal tunnel syndrome are any better or any worse than standard open carpal tunnel release. (Scholten, 2004) Another review concluded that endoscopic carpal tunnel release technique is worse in terms of reversible nerve injury but superior in terms of grip strength and scar tenderness, at least in short-term follow-up, and that the evidence is conflicting for return to work and function. (Thoma, 2004) The complication rate appears to be higher in the endoscopic group compared to the mini palm technique. Based on the data from the randomized-controlled trials, endoscopic carpal tunnel release seems to be an effective procedure compared to open surgery; however, greater emphasis must be given to the training of surgeons in this technique, so that major complications such as median nerve injuries can be avoided. With proper training and equipment, endoscopic carpal tunnel release can be done safely, allowing earlier return to work, with complication rates comparable to those for the standard open technique. Early return to work after carpal tunnel surgery is more dependent on the willingness of the employer and employee than on the surgical technique. (Various references listed

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under “Surgical Considerations”) (Chung, 1998) (Verdugo, 2002) (Shin, 2000) (AHRQ, 2003) (Saw, 2003) (Macdermid, 2003) (Wasiak, 2006) (Schmelzer, 2006) (Atroshi, 2006) A recent trial concluded that minimally invasive carpal tunnel decompression is marginally more effective than open surgery in terms of functional status, but not significantly so. (Lorgelly, 2005) A literature review covering 22,327 cases of endoscopic carpal tunnel release and 5,669 cases of open carpal tunnel release concluded that complications for carpal tunnel surgery, performed via either method, are very low, so selection of an open versus an endoscopic approach on the basis of complications is not supported by the data. (In fact, the incidence of complications for open carpal tunnel release was 0.49%, very small but actually greater than that for endoscopic methods at 0.19%.) (Benson, 2006)

Causality (determination): Recommended as indicated below. Determination of causation typically involves mechanism of injury, temporal relationship, and dose effect. Carpal tunnel syndrome seems to be primarily attributable to CTS-prone personal characteristics (e.g., obesity, diabetes, female, smoking), but symptoms may be associated with workplace activities. (Melhorn, 2008) (Lozano-Calderon, 2008) Some controversy continues about whether computer work is a risk factor for CTS, with current opinion that the keyboard is low risk and that the mouse may be mild risk. There is some evidence to conclude that CTS symptoms are associated with workplace activities, but current studies have not proven a causal relationship. (Nathan, 1993) (Lam, 1998) (Nordstrom, 1997) (Moore, 1997) (NIOSH, 1992) (Stevens-Mayo, 2001) (Denniston, 2001) (Andersen-JAMA, 2003) (WCB-Alberta, 2003) (Falkiner, 2002) (Nathan, 2002) (Dias, 2004) (Wellman, 2004) (You, 2004) (Boz, 2004) (Geoghegan, 2004) (Landau, 2005) (Bonfiglioli, 2006) (Melchior, 2006) (Derebery, 2006) (Werner, 2006) Microbreaks from repetitive motion jobs show positive, limited evidence. Limitations of keyboard work or pinch grasping may be a reasonable option during the first few weeks after onset of symptoms. There is evidence that keyboard users may experience a reduction in hand pain after several months of use of some alternative geometry keyboards, although the benefit appears to be user preference. Activities that aggravate symptoms include: (1) repetitive or prolonged wrist movement, especially if forceful (e.g., keyboarding, butchering, assembling, hammering, buffing, grinding, sanding, scrubbing, packing, sorting mail, wringing laundry, opening jars, knitting, turning a key, gripping a doorknob, playing a musical instrument, etc.); (2) localized mechanical stresses (e.g., prolonged pressure over the wrist or palm); (3) exposure to excessive vibration (e.g., a jackhammer, chainsaw); and (4) prolonged exposure to cold temperatures (e.g., handling cold parts). (Mclean, 2001) (Rempel, 1999) (Tittiranonda, 1999) Although obesity and gender are consistent predictors of CTS, workplace demands appear to bear an uncertain relationship to CTS. (Nathan, 2005) Regarding preplacement nerve testing for CTS, not hiring workers with abnormal post-offer preplacement median nerve tests to reduce costs of work-related CTS is not a cost-effective strategy for employers. (Franzblau, 2004) (Werner, 2006) And genetic testing is not recommended. (Schulte, 2003) High force with repetitive work was associated with a higher level of CTS and abnormal NCS. These findings appeared to be reversible following a period of less repetitive work. Prevalence of CTS was significantly higher in assembly line workers compared to non-assembly line workers. (Bonfiglioli, 2006) A recent study of wrist posture, loading and repetitive motion as risk factors for developing carpal tunnel syndrome, found that frequent flexion (OR 4.4), frequent extension (OR 2.7), and sustained forceful motion (OR 2.6) were associated with CTS, but neutral wrist position and repetitive wrist motion were not associated with CTS. (Fung, 2007) A recent systematic review of studies of computer work and CTS concluded, because of insufficient quality, bias, lack of consistency and statistical power, evidence is insufficient to conclude that computer work (mouse and keyboard)

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causes CTS. Experiments on the effect of positions of fingers, wrist and forearm comparable to the positions common in computer use have shown that carpal tunnel pressure (CTP) increases but not to levels generally believed to be harmful. Mean CTP levels between 28-33 mmHg where observed when study participants were dragging or clicking with the mouse, but lower values were found with the hand static on the mouse. Although the experiment has never been repeated these findings indicate a possible pathophysiological mechanism for CTS among heavy mouse users. (Thomsen, 2008) See also Work; & ODG Capabilities & Activity Modifications for Restricted Work.

ODG Causality Likelihood. Based on the raw data, Causality Likelihood indicates the benchmark percentage of total lost workdays that are occupational in nature. This indicator may be used as an aid in evaluating causality, but any definitive determination requires detailed, case-specific analysis. See Preface for more information.
354.0 Carpal tunnel syndrome, Causality Likelihood: 39%
Diabetes (comorbidity): Recommended in diagnostic screening for history, but not specific lab tests. A meta-analysis of trials concluded that the prevalence of concurrent diseases is higher in CTS patients than in controls: the pooled odds ratios are 2.2 for diabetes mellitus, 1.4 for hypothyroidism, and 2.2 for rheumatoid arthritis. However, there is insufficient evidence for routine laboratory screening for these concurrent conditions in all newly diagnosed CTS patients. (van Dijk, 2003) Identification and treatment of underlying conditions may resolve symptoms of CTS: pregnancy (usually resolves within 6 weeks after delivery), hypothyroidism, diabetes mellitus, rheumatoid arthritis. (Courts, 1995) (Perkins, 2002) However, a recent study concluded that diabetes is not a risk factor for poor outcome of surgical decompression by the mini-incision of palm technique; patients with diabetes have the same probability of positive surgical outcome as patients with idiopathic CTS. (Mondelli, 2004) A recent study concluded that the predicted lifetime risk of CTS reached 85% after 54 years of Type 1 diabetes. In those diagnosed with diabetes before the age of 20 there was a lag time of at least 19 years before the development of CTS, whereas patients with later onset of diabetes, began to develop CTS from as early as 5 years diabetes duration. (Singh, 2005) The crude incidence of first carpal tunnel decompression (CTD) is increased in type 2 diabetes, to at least 4.2 times the incidence in the general population, and is associated with obesity and sociodemographic factors that could indicate treatment-seeking behavior. (Makepeace, 2008)

Differential diagnosis: Recommended. After ruling out “red flags”, there is considerable value in first, making sure the diagnosis of CTS is correct, and second, isolating severe CTS. Carpal tunnel syndrome does NOT produce just wrist pain. It causes digital pain or tingling that is primarily in the thumb, index and long finger or numbness in the wrist. Symptoms of pain, numbness, and tingling in the hands are common in the general population, but based on studies, only about 1 in 5 symptomatic subjects would be expected to have CTS based on clinical examination and electrophysiologic testing. Nerve conduction studies are the “gold standard” in CTS diagnosis, but other tests may also be useful. Meta-analysis of combined studies showing sensitivity and specificity of various diagnostic tests compared to nerve conduction studies are shown in (Test Table). Identification and treatment of underlying conditions may resolve symptoms of CTS: pregnancy (usually resolves within 6 weeks after delivery), hypothyroidism, diabetes mellitus, rheumatoid arthritis. CTS may be treated with a wrist-and-thumb splint and acetaminophen for four to eight weeks before a corticosteroid injection is considered, except in the case of severe CTS (thenar muscle atrophy and constant paresthesias in the median innervated digits). Outcomes from carpal tunnel

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surgery justify prompt referral for surgery in moderate to severe cases. Nevertheless, surgery should not be performed until the diagnosis of CTS is made by history, physical examination and possible electrodiagnostic studies. Symptomatic relief from a cortisone/anesthetic injection will facilitate the diagnosis, however the benefit from these injections although good is short-lived. (Colorado, 1998) (Interqual, 1999) (Finestone, 1996) (Marchuk, 1998) Making an accurate diagnosis of CTS and initiating appropriate actions earlier than might otherwise occur could reduce the disability and costs in a large fraction of claims that are ultimately determined to involve CTS. (Daniell, 2005) In using demographic and clinical data to identify the clinical pattern that predicts the diagnosis of CTS, the best pattern associated with the diagnosis was the presence of paresthesias or pain in at least 2 of the first 4 digits in association with one of the following: female gender, symptoms worsening at night or on awakening, a BMI >/=30, thenar atrophy, or other sign (Tinel's, Phalen's, or Reversed Phalen's signs). However, the clinical picture alone, without neurophysiologic studies, does not seem sufficient to correctly predict the diagnosis of CTS. (Gomes, 2006)

A DESCRIPTION AND THE SOURCE OF THE SCREENING CRITERIA OR OTHER CLINICAL BASIS USED TO MAKE THE DECISION:

ODG- OFFICIAL DISABILITY GUIDELINES & TREATMENT GUIDELINES