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An Incentive Model for Reimbursement of Chiropractic Services

Kevin J. Pursel, DC, et al.

Objective: The purpose of this study is to describe a reimbursement model that was developed by one Health Maintenance Organization (HMO) to transition from fee-for-service to add a combination of pay for performance and reporting model of [reimbursement](#) for chiropractic care.

Methods: The previous incentive program used by the HMO provided best-practice education and additional reimbursement incentives for achieving the National Committee for Quality Assurance Back Pain Recognition Program (NCQA-BPRP) recognition status. However, this model had not leveled costs between doctors of chiropractic (DCs). Therefore, the HMO management aimed to develop a reimbursement model to incentivize providers to embrace existing best-practice models and report existing quality metrics. The development goals included the following: it should (1) be as financially predictable as the previous system, (2) cost no more on a per-member basis, (3) meet the coverage needs of its members, and (4) be able to be operationalized. The model should also reward DCs who embraced best practices with compensation, not simply tied to providing more procedures, the new program needed to (1) cause little or no disruption in current billing, (2) be grounded achievable and defined expectations for improvement in quality, and (3) be voluntary, without being unduly punitive, should the DC choose not to participate in the program.

Results: The generated model was named the Comprehensive Chiropractic Quality Reimbursement Methodology (CCQRM; pronounced "Quorum"). In this hybrid model, additional reimbursement, beyond pay-for-procedures will be based on unique payment interpretations reporting selected, existing Physician Quality Reporting System (PQRS) codes, meaningful use of electronic health records, and achieving NCQA-BPRP recognition. This model aims to compensate providers using pay-for-performance, pay-for-quality reporting, pay-for-procedure methods.

Conclusion: The CCQRM reimbursement model was developed to address the current needs of one HMO that aims to transition from fee-for-service to a pay-for-performance and quality reporting for reimbursement for chiropractic care. This model is theoretically based on the combination of a fee-for-

service payment, pay for participation (NCQA Back Pain Recognition Program payment), meaningful use of electronic health record payment, and pay for reporting (PQRSBPMG payment). Evaluation of this model needs to be implemented to determine if it will achieve its intended goals.

Intradiscal Pressure During Cervical Manipulation: Position, Segment Influences

Li-Ping Wu, MD, et al.

Objective: The purpose of this study was to determine influences of **cervical spine** positions, turning times, and cervical segments on cadaver intradiscal pressure (IDP) during cervical spinal manipulative therapy (SMT).

Methods: We simulated cervical SMT with stretching and rotation on seven fresh adult cadaver specimens in the material test system machine. The changes in IDP for cervical intervertebral disks (C3/4, C4/5, and C5/6) during four different stages of cervical SMT (physiologic state, end of the traction stage, turning stage, and finish time) were monitored. Five different cervical positions (extension 20°, extension 10°, neutral position, flexion 10°, flexion 20°) and three different turning times (0.06, 0.11, 0.16 second) of IDP were monitored, using micropressure sensors.

Results: The variable tendency of cervical IDP presents a "V"-shaped curve during SMT. The four stages of SMT had significantly different IDP ($F = 5498.956$; $P < .001$). There were also significant differences in IDP between the five cervical positions ($[F = 1371.216$; $P < .001]$, [flexion 20° > flexion 10° > neutral position > extension 10° > extension 20°]), three turning times ($[F = 419.530$; $P < .001]$, [0.06 > 0.11 > 0.16 seconds]), and three cervical segments ($[F = 84.282$; $P < .001]$, [C3/4 < C4/5 < C5/6]). Intradiscal pressure was lowest at 20° extension combined with a turning time of 0.16 second.

Conclusion: Different cervical positions, turning times, and cervical segments largely influence IDP during the process of SMT. Further research using human subjects should determine if these findings contribute to greater patient comfort, safety, and clinical efficacy with SMT.

Changes in PPT, EMG Activity After Instrument-Assisted Spinal Manipulation

Xiaojie Yu, MD, et al.

Objective: The purpose of this study was to investigate the effects of **instrument-assisted** spinal manipulative therapy (SMT) targeted to the low-back region on changes in pressure pain thresholds (PPTs) and basal electromyographic activity (BEA) in asymptomatic participants.

Methods: A repeated-measures, single-blind, randomized trial was conducted on 30 participants, 19 men and 11 women (mean age, 24.5 ± 3.9 years), without a current history of low-back pain. Each participant attended all two treatment group sessions and received instrument-assisted SMT or a sham manipulation procedure. Instrument-assisted SMT was administered using the Activator Method protocol. Bilateral PPT levels over L5-S1 zygapophyseal joints, L5 dermatome, and first dorsal interossei in the hand and bilateral BEA of low back and neck region were assessed pre- and posttreatment by an assessor blinded to the treatment allocation of the participant. A three-way analysis of variance with time (pre-post) and side (ipsilateral, contralateral to the intervention) as within-group variable and intervention (manipulation or sham) as between-group variable was used to

evaluate changes in PPT. A paired sample t test was used to analyze the differences between pre- and posttreatment in BEA.

Results: The group vs. time interaction was statistically significant for PPT irrespective of the site tested or the side treated. Participants receiving the instrument-assisted SMT experienced greater improvement in PPT when compared with the control group. Paired sample t tests for BEA only show an immediate decrease in BEA of the paraspinal muscle on the pelvic deficiency side of the low-back region.

Conclusions: The application of instrument-assisted SMT resulted in an immediate and widespread hypoalgesic effect with local muscle relaxation in asymptomatic participants. It is hypothesized that therapeutic mechanisms, either segmental or central, may be involved in the therapeutic effects of instrument-assisted SMT.

Mobilization With Movement and Kinesiotaping for Painful Shoulder

Olivera Djordjevic, MD, et al.

Objective: The purpose of this study was to compare the efficacy of Mobilization with Movement (MWM) and [kinesiotaping](#) (KT) techniques with a supervised exercise program in participants with patients with shoulder pain.

Methods: Twenty subjects with shoulder pain were included if subjects were diagnosed by the referring physician with either rotator cuff lesion with impingement syndrome or impingement shoulder syndrome. Participants were randomly assigned to one of two groups after clinical and radiologic assessment: group 1 was treated with MWM and KT techniques, whereas group 2 was treated with a supervised exercise program. The main outcome measures were active pain-free shoulder abduction and flexion tested on days 0, 5, and 10.

Results: Improvement in active pain-free shoulder range of motion was significantly higher in the group treated with MWM and KT. Repeated-measures analysis of variance indicated significant effects of treatment, time, and treatment \times time interaction.

Conclusion: This study suggests that MWM and KT may be an effective and useful treatment in range of motion augmentation of subjects with rotator cuff lesion and impingement syndrome or impingement shoulder syndrome.

Radiographic Analysis of the Anterior-to-Posterior Open-Mouth Cervical Spine View

Todd A. Hubbard, DC, MS, et al.

Objective: The purpose of this study was to measure the frequency with which the atlas transverse process is overlapped by the inferior tip of the mastoid process based upon radiographic analysis of the anterior to posterior open mouth (APOM) cervical spine view.

Methods: This is a retrospective study. Anterior to posterior open mouth radiographs (N = 120) were obtained from patient files at a chiropractic clinic. Dimensions were bilaterally measured: the vertical

distance from the inferior mastoid to the superior margin of the C1 transverse process (C1TP) and the vertical distance from the inferior mastoid to the inferior margin of the C1TP. The percentage of the C1TP occluded by the mastoid process was calculated by determining the occlusal distance. These percentages were grouped into four categories: no occlusion, 1% to 50%, 50% to 99%, and 100%.

Results: The occlusal distance for the left and right ranged from -7.1 to 19.0 mm and -7.5 to 19.5 mm, respectively. The mean occlusal distance was identical on the left and right sides (4.6 [SD, 5.1 mm] and 4.7 mm [SD, 5.0 mm], respectively). The percentage of occlusion for the left and right transverse processes ranged from 0% to 80% and 0% to 100%, respectively. The mean percentage was 6.4% (SD, 16.4) on the left and 6.2% (SD, 16.3) on the right.

Conclusion: This study shows that the occlusal distance for the left and right ranged from -7.1 to 19.0 mm and -7.5 to 19.5 mm, respectively. A total occlusion of the C1TP occurred in one side of 120 participants in this sample.

Survey of Ethics Education in North American Chiropractic Colleges

Stuart Kinsinger, MS, DC, et al.

Objective: The purposes of this study were to survey Council on Chiropractic Education-accredited chiropractic colleges in North America and to describe curricular details on the teaching of bioethics.

Methods: A custom-designed survey was sent to chiropractic colleges. Total number of contact hours, whether the ethics was a stand-alone course or integrated elsewhere, type of instructor, and if there was a required or recommended course text were queried.

Results: Of 19 surveys sent by mail, 15 surveys were returned. The average time in ethics instruction was 18.7 hours including lecture format, small group tutorial, and self-study. Chiropractic ethics education includes eight areas of content (boundaries, law and jurisprudence, professionalism, basic ethic tenets/principles, ethical codes of conduct, prevention of financial and of sexual abuse, and resolving an ethical dilemma). Some colleges include content taught to students under the domain of law and jurisprudence.

Conclusion: The results of this survey indicate that there are opportunities to further develop the educational ethics program at Council on Chiropractic Education-accredited colleges. All colleges currently offer bioethics teaching. An expanded role for this content is recommended so as to offer optimal benefit for students and practitioners.

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