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SELECTED OCCUPATIONAL HISTORY

Owner/President/Chiropractor, Complete Care Health Services Inc., Lakewood, CO, 1991 - Present

Owner/President/Chiropractor, A Better Back Clinic, Inc., Lakewood, CO, 1994 - Present

Owner/President/Chiropractor, Auto Injury Management Group, Lakewood, CO, 2017 - Present

Owner/President/Chiropractor, Massage Time Massage, Inc., Lakewood, CO, 2018 - Present

LICENSURE

Doctor of Chiropractic, Licensed in the State of Colorado, License # 2285, 1984 – Present

National Board of Chiropractic Examiners, Part II, 1984

National Board of Chiropractic Examiners, Part I, 1984

EDUCATION

Graduate Studies in Biomechanics, University of Mississippi , University, MS, 2024

Doctorate of Chiropractic, Los Angeles College of Chiropractic, Whittier, CA, 1984

Masters Studies, Physiology Psychology, Springfield College, Springfield, MA, 1979 -1980

Bachelors of Science in the study of Pre Medical Biology, Springfield College, Springfield, MA, 1976 - 1979

Associates Degree in the study of Emergency Medical Technician, Springfield College, Springfield, MA, 1975 - 1976

ACADEMICS

Extension Faculty Member, CBI program, Parker University, Dallas, TX

CERTIFICATIONS, QUALIFICATIONS, AND DIPLOMATES

Fellow Spinal Biomechanics and Trauma - Completion of the academics required for Fellowship qualification in Spinal Biomechanics and Trauma through courses provided by *National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, and State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2021 - 2023. Clinical rotations 2023 to Present*

Academy of Chiropractic – Active Trauma Team Member, 2020 – Present

Hospital Based Spine Care Qualified, Credentialed in hospital protocols, emergency room protocols, acute and chronic patient triage inclusive of MRI spine interpretation, spinal biomechanical engineering, head trauma, concussion, mild traumatic and traumatic brain injuries. Co-credentialed through the ACCME (Accreditation Council for Continuing Medical Education), Cleveland University – Kansas City and the Academy of Chiropractic, Long Island, New York, 2021

Primary Spine Care Qualified, This qualification includes graduate chiropractic education in healthy and traumatically altered spinal morphology inclusive of osseous, connective tissue and neurological structure, function and pathology. This certifies you are qualified in assessing predictive models in spinal biomechanics and devising engineering paradigms for treatment plans to maximize spinal homeostasis in an evidenced based conclusion. In addition, this qualification acknowledges your expertise in triaging the injured and coordinating collaborative care from the trauma through conclusion of rehabilitation, Academy of Chiropractic Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island NY, 2021

Certified, Diagnosis of Accident Related Trauma Injuries of the Head and Neck, Ligament Injury Institute, Denver, CO, 2019

Certified Chiropractic Pre-Participatory Sports Physical Exam, Colorado Chiropractic Association, Denver, CO, 2019

Certified Chiropractic Accident biomechanics, Spine Research Institute, Southern California University of Health Sciences, Whittier, CA, 2017

Certified Chiropractic Computerized Instrumentation Evaluation/Impairments, J-Tech Medical Corporation, Midvale, UT, 2017

Certified Chiropractic Advanced Examination Spinal Ligament Injury, American Spinal Injury and Impairment Consultants, Eau Claire, WI, 2017

Certified Chiropractic Trauma Care and Advanced Documentation Protocols, Personal Injury Institute, Lewisville, TX, 2017

Certified Chiropractic Independent Chiropractic Examiner, Marshall University, Joan C. Edwards School of Medicine/American Board of Independent Medical Examiners, Huntington, WV, 2017

Certified Chiropractic AMA Impairment Evaluations, State Board of Chiropractic Examiners, Denver, CO, 1997

Certified Chiropractic Level 1 Workers Compensation, State of Colorado, Denver, CO, 1994

Fellow Chiropractic Clinical Acupuncturist, International Academy of Clinical Acupuncture, Denver, CO, 1994

Certified Chiropractic Neuro-Selective Perception Threshold Exams, Neurotronic Medical Electronics, Denver, CO, 1994

Certified Chiropractic Chiro-Podiatrist, American Orthotics Laboratories, St Louis, MO, 1985

Certified Chiropractic Sports Physician, Los Angeles College of Chiropractic, Whittier, CA, 1984

SELECTED POST-GRADUATE EDUCATION

Instructor - National Spine Management East Conference 2023 – Objectifying Tissue Injury in the Spine - *Detailed discussion of the “gold standard” tests that objectify injury in the human spine. Assessment of muscle, tendon/ligament, intervertebral disc, spinal nerve, and boney injuries was presented and correlated to imaging findings. Physical examination findings examples were correlated for the compliant need for testing orders including but not limited to plain film radiographs, MRI, CT, EMG/NCV and Bone Scan.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards 2023.

Instructor - National Spine Management East Conference 2023 – The Science of Chiropractic—whatdoestheresearch say? – *Detailed analysis of the 2022-2023 scientific literature supporting chiropractic management of the spine pain patient. Outline of supporting evidence in the pain management, corrective care and health maintenance phases of care was presented. Peer reviewed medically indexed papers were discussed and correlated to trends in research with emphasis on the RAND Corporation’s Center for Collaborative Research in Complementary and Integrative Health was presented.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards 2023.

Instructor - National Spine Management East Conference 2023 – Anatomy and Histological Composition ofthe HealthyIntervertebral Disc – *Anatomy of the healthy intervertebral disc and its nerve supply was reviewed.An overview of the histological structure of the intervertebral disc was presented. Discussion of the chemical and histological make-up of the intervertebral disc including vascular, proteoglycan and extracellular matrix composition was outlined and presented. Specific innervation and vascularization patterns and their relation to pain generating injuries was explained.*National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards 2023.

Instructor - National Spine Management East Conference 2023 – AnatomyandHistological CompositionoftheDegenerativeIntervertebralDisc – *Anatomy of the degenerative intervertebral disc and its nerve supply will be reviewed.An overview of the histological structure of the degenerating intervertebral disc was presented. Discussion of the chemical and histological make-up of the degenerative intervertebral disc including vascular, proteoglycan and extracellular matrix composition will be presented. Key differences between*

the healthy and degenerative disc will be outlined including neovascularization and the ingrowth of free nerve endings. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards 2023.

Instructor - National Spine Management East Conference 2023 – Nomenclature of the Intervertebral Disc - *Detailed presentation of intervertebral disc nomenclature as outlined by the combined task forces of the North American Spine Society, the American Society of Spine Radiology, and the American Society of Neuroradiology. Specific classification parameters and descriptions of intervertebral disc bulge, protrusion, herniation, extrusion, sequestration, and traumatic disc bulge will be presented and reviewed. Differences in morphological description were presented with sagittal and axial MRI examples. Review of clinical correlation to etiology was discussed.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards 2023.

Instructor - National Spine Management East Conference 2023 – Anatomy and Histology of Spinal Ligaments – *Presentation of the ligamentous structures of the human spine including but not limited to the anterior longitudinal, posterior longitudinal, intertransverse, facet capsular, ligamentum flavum, interspinous and supraspinous ligaments was outlined. Histological presentation will be provided with focus on regional adaptation to ligamentous microscopic structure with details presented on intracellular matrix and cytokine activity following traumatic events. Emphasis was placed on injury thresholds using the stress/strain curve as a guide.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards 2023.

Instructor - National Spine Management East Conference 2023 – Functional Physiology of the Spinal Ligament and the Chiropractic Subluxation – *Biomechanical alterations and their effect on spinal ligaments will be presented including isotropic and anisotropic changes in ligament function. Clinical correlation will be provided based on radiographic findings, traumatic events, and chronic compensatory pain patterns. Emphasis was placed on recent peer-reviewed evidence showing transection of one ligament in the spine has an influence on all others. Correlation to chiropractic care was emphasized.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards 2023.

Instructor - National Spine Management East Conference 2023 – Spinal Biomechanics – Sagittal Alignment Parameters – *Detailed overview of sagittal balance in both a whole spine and regional perspective will be presented. Correlation to segmental changes will be reviewed. Interprofessional communication with primary care and medical specialists will be outlined with focus on kyphotic, lordotic and pelvic parameters. Emphasis was placed on pelvic incidence, pelvic tilt, sacral slope, lumbar lordosis, thoracic kyphosis, T1 angle and cervical lordosis. Discussion of these biomechanical parameters within the corrective phase of chiropractic and*

communication with the spine surgeon was emphasized. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards 2023.

Instructor - National Spine Management East Conference 2023 - Communicating Chiropractic to the Medical Community - *Overview and specific examples of interprofessional communication with the medical community were discussed. Common mistakes relating to speaking with primary care, interventional pain management and spine surgeons will be presented and reviewed. Emphasis will be placed on diagnosis and management of the spine pain patients within the pain management, corrective, and health maintenance phases of chiropractic care. Presentation was supported by examples published in the peer reviewed medically indexed scientific literature.*National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards 2023.

Instructor - National Spine Management East Conference 2023 - Communicating Chiropractic to the Legal Community - *Presentation on the anatomy of medical-legal reporting and connective tissue diagnosis was provided. Overview of the care paradigm was presented including causal relationship, bodily injury, and persistent functional loss. Objectification of spinal injury and delineation between new and pre-existing conditions was outlined. Specific case reporting and timelines for accurate explanation of bodily injury was detailed.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards 2023.

Instructor - National Spine Management East Conference 2023 - Documentation and Diagnostic Workflows - *Modernization of documentation workflows were presented with focus on E/M evaluations and care schedules. Medical necessity and clinical timing were outlined and addressed relating to diagnostic testing and specialist referral. The benefits of a using case findings to reach out to the medical community was addressed and compared to outreach processes.*National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards 2023.

Instructor - National Spine Management East Conference 2023 - Professional Liability – how to protect yourself - *Common pitfalls and risk factors related to professional liability will be reviewed including physical examination and diagnostic duties. Review of professional boundaries will be presented. Proper patient intake, examination and clinical behavior will be presented. Emphasis will be placed on adverse events risk factors such as hypertension and genetic connective tissue disorders including Marfans and Ehlers-Danlos Syndrome were outlined.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards 2023.

Instructor - National Spine Management East Conference 2023 - Interprofessional Communication System – make it easy and effective - *Overview of professional reporting systems in the modern area including completion of clinical reporting timely, outline of clinical information to include in specialist referral and imaging orders will be presented. Details of interprofessional communication to the primary care physician, spine surgeon and interventional*

*pain management provider was detailed and explained.*National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards 2023.

Clinical Grand Rounds – CT Lumbar Spine Anatomy – detailed review of anatomical structures in the axial, sagittal and coronal planes of CT of the lumbar spine. *Musculature presented included gluteus medius, psoas major, multifidus, iliacus, lumbar paraspinals and quadratus lumborum in both the T1 and T2 axial sequences. Emphasis was placed on the structure and morphology of the hard tissues of the spine with particular focus on the facet joints and pars interarticularis. Location and anatomical structure of the sacroiliac joint was presented and discussed. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards – PACE, State University of New York at Buffalo Jacobs School of Medicine, and Biomedical Sciences – 11-17-2022.*

Clinical Grand Rounds – MRI Lumbar Spine – axial anatomy – detailed review of anatomical structures on the axial slices of lumbar spine MRI were presented. *Musculature presented included gluteus medius, psoas major, multifidus, iliacus, lumbar paraspinals and quadratus lumborum in both the T1 and T2 axial sequences. Traversing vs exiting spinal nerves were contrasted and compared to cervical spine. Neurological structures such as conus medullaris, caudia equina, filum terminale, ventral and dorsal nerve roots were identified. Visualization and discussion of benefit of T2 axial sequences in the identification of facet joint pathology was presented. Emphasis was placed on the structure and morphology of the intervertebral disc and spinal ligaments including anterior longitudinal ligament, posterior longitudinal ligament, facet capsule, interspinous, supraspinous, intertransverse and iliolumbar were detailed. Location and anatomical structure of the sacroiliac joint was presented and discussed. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards – PACE, State University of New York at Buffalo Jacobs School of Medicine, and Biomedical Sciences – 11-10-2022.*

Clinical Grand Rounds – Indications and Absolute/Relative Contraindications to Chiropractic Care – *review of inclusion criteria accompanying modification of chiropractic treatment plan due to an absolute or relative contraindication to chiropractic care. Examples of clinical rationale, physical examination findings and proper diagnoses were provided. Review of the definitions of both relative and absolute contraindications to chiropractic care, specific details on referral to medical specialty were provided. Analysis of regional contraindications and treatment in adjacent regions were provided and discussed. The keys to understanding indications to care were detailed including the patient interview, review of medical records, diagnosis, and spinal examination findings. Review of most common reasons for chiropractic license violations were presented including application of the chiropractic adjustment to a contraindicated condition, failing to refer in the presence of a contraindication, failure to properly evaluate the patient to determine if a contraindication is present and failing to properly document the patient encounter. National Spine Management Group, LLC, Federation of Chiropractic*

Licensing Boards – PACE, State University of New York at Buffalo Jacobs School of Medicine, and Biomedical Sciences – 10-27-2022

Clinical Grand Rounds – x-ray dosage, sagittal balance and surgery success rates – *discussion related to millisievert and cumulative effective dose was presented. Outline of the definition and research process of achieving Minimal Clinical Important Difference in spine surgery was discussed. CED levels below 100mSv was reviewed and compared to patients receiving multiple plain film radiographs. Discussion and relation of spinal biomechanics, sagittal balance, utilization of spine radiographs and MRI to working with the neurosurgeon was outlined. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards – PACE, State University of New York at Buffalo Jacobs School of Medicine, and Biomedical Sciences – 10-22-2022.*

Imaging, Case and Strain/Sprain Reporting, Documentation, and coding for x-ray and MRI reports, and patient education. *Connective tissue pathology as sequella to trauma and diagnosing of ligament laxity and strain-sprain in conjunction with biomechanical lesions of the human spine. The demonstrative reporting of spinal biomechanical lesions and the subsequent creation of treatment plans. Cleveland University Kansas City, College of Chiropractic, Academy of Chiropractic, Long Island, NY, 2022*

National Spine Management West Conference 2022 – Fellowship Training and the Chiropractic Literature, *Overview of current literature-based examples of the evolution of chiropractic graduate education was presented. The need for clinical rotations, interprofessional communication and patient advocacy was detailed. Future training modules including learner outcome assessments and educational pathways were also outlined. Detailed review of the medical model of graduate education was detailed and explained with a pathway for chiropractic academic growth outlined. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022*

National Spine Management West Conference 2022 – Spine Management and the Future of Spine Care, *Discussion of the role of a spine manager in the daily treatment of spine patients was presented. Emphasis was placed on the understanding of the roles of other providers in the care paradigm including interventional pain management, spine surgery and rehabilitation professionals. Interprofessional communication techniques were presented with a focus on diagnosis and management in a patient centered environment. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022*

National Spine Management West Conference 2022 - The Future of Spinal Biomechanics, *Review of essential biomechanical parameters in the human spine was presented. Emphasis was placed on their clinical application, patient outcomes and communication with the spine surgeon when applicable. Pre and post-surgical case management*

was reviewed in the context of peer-reviewed medically indexed literature. A look to the future of interprofessional spine care between the chiropractor and the surgeon was presented. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

National Spine Management West Conference 2022 - How Jurors Determine Damage Awards, *The importance of Anchors - discussion and review of litigation award Anchors and their influence on the chiropractic practice and documentation of functional losses due to spinal injury was outlined. Courtroom processes and review of testimony was presented. Consensus driven diagnosis and case management was emphasized. Objectification of bodily injury and its relation to short and long-term functional losses was presented. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022*

National Spine Management West Conference 2022 – Updated Chiropractic Science Research, *Review and discussion of 2021/2022 research supporting the chiropractic profession and the doctor of chiropractor as a spine care manager was outlined. Specific papers were presented related to the pain management, corrective, and health maintenance phases of chiropractic care. Overview of current and future research trends were demonstrated in relation to the pain management phase, corrective care phase and health maintenance phase of chiropractic management. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022*

National Spine Management West Conference 2022 – Compliance and Documentation, *Practice pitfalls 101 - Detailed review of compliance parameters within clinical documentation with emphasis on detailed efficient processes was presented. Pitfalls common to clinical practice was demonstrated with practical, office ready solutions to ensure proper workflows, compliance, and efficiency were outlined. Whole practice documentation modeling was discussed including the use of a scribe. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022*

National Spine Management West Conference 2022 – Spine Care Leadership, Educating the legal community - Overview of spine leadership and the process of creating a positive medical-legal provider reputation in your community was presented. Focus on structuring a legal community outreach program, what topics to include and the process of building support was detailed. This section outlined the differences between the various stakeholders in the legal community including adjusters, paralegals, lawyers, law clerks and judges was detailed. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

National Spine Management West Conference 2022 – Spine Care Leadership, Educating the medical community - Overview of spine care leadership and the processes of creating an Evidence-Based, Patient Centered reputation in your community was discussed. Focus on

structuring a medical community outreach program, what topics to include and the process of building support was detailed. This section outlined the differences between the various stakeholders in the medical community including nurses, physician assistants, physicians, and administrative support staff was discussed. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

National Spine Management West Conference 2022 – **Advanced Imaging Protocols**, *Update of the science of MRI - Detailed review of common MRI sequences for spine imaging will be presented including T1, T2 and STIR in the sagittal and axial planes was presented. Additional sequences such as Proton Density, Diffusion Weighted and Dixon was detailed and reviewed. Particular attention were given to ordering contrast medium in a spine care practice.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

National Spine Management West Conference 2022 – **Anatomy of a Narrative Report**, *Departing from gimmicks - Presentation on the flow of clinical information into the medicallegal format used by adjusters, attorneys, judges, jurors, and law clerks was provided. Key indicators of persistent functional loss such as physical examination findings, global and segmental range of motion, advanced imaging findings and results of electrodiagnostic testing were outlined. Direct discussion on where in a narrative report these findings are to be written with an emphasis on patient assessment and expert opinion.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

National Spine Management West Conference 2022 – **Communicating with the Lawyer, Low Speed Collisions** - *Discussion of the medical-legal implications of injuries sustained as a result of a low speed/impact collision resulting in minimal property damage was outlined. Clinical correlation to the low-speed mechanism of injury, objective physical examination findings, results of advanced imaging and persistent functional loss was reviewed. Medical legal discussion related to the correlation between impact forces and human spinal tolerance with particular attention being given to pre-existing degenerative spinal conditions was presented.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

National Spine Management West Conference 2022 - **Communicating with the Lawyer, AOMSI** - *Discussion of the medical-legal implications of injuries to the ligaments of the human spine was presented. Clinical correlation to mechanism of injury, objective physical examination findings, results of advanced imaging and persistent functional loss were reviewed. Medical legal discussion of the anatomy of spinal ligaments in the normal, degenerative, and traumatically injured spine was presented. Details of nerve supply to ligaments and the mechanism of scar tissue formation through the wound repair process was provided.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

National Spine Management West Conference 2022 – **Communicating with the Lawyer, Disc Injuries** - *Discussion of the medical-legal implications of injuries to the intervertebral disc was presented. Clinical correlation to mechanism of injury, objective physical examination findings, results of advanced imaging and persistent functional loss were reviewed. Medical legal discussion of anatomy of intervertebral disc herniation, degenerative bulge, annular tear, and their relationship to nerve supply in terms the legal community can understand was detailed.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

National Spine Management West Conference 2022 – **Interprofessional referral and pathways**, *Review and outline of complete workflows for patient evaluation, documentation and triage when clinically indicated were detailed. Efficiency and accuracy of interprofessional communication was presented in terms of the needs of the patient, pain management physician, spine surgeon, physical therapist, and primary care physician. Evidence based triage workflows were discussed and detailed with emphasis on preventing unnecessary escalation of care in spine pain patients was presented.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

National Spine Management West Conference 2022 – **Communication with Physical Therapy**, *The untapped potential - Discussion on developing a collaborative relationship with physical therapy and its effect on outcomes and community-based care was outlined. Supportive scientific literature presenting the interaction between spinal biomechanics and supervised rehabilitative techniques was reviewed. Outcomes and interprofessional communication techniques were discussed with an emphasis on interprofessional referral and support of both professions.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

National Spine Management West Conference 2022, **Communicating with the Primary Care Physician** - *Review of literature supporting interprofessional communication at the primary care level was presented. Literature outlining interprofessional communication and the needs of the primary care physician was discussed. Efficient reporting and communication points were reviewed. Chiropractic interaction with primary care physicians from a clinical perspective were outlined with an emphasis on supportive relationships.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

National Spine Management West Conference 2022, **Communicating with the Pain Management Physician** - *Review of the scientific literature supporting interprofessional collaboration with the interventional pain management physician was outlined. Updates and review of the chiropractic scientific literature in relation to pain management mechanisms of the chiropractic adjustment were presented. Documentation and interprofessional referral, communication and telecommunication talking points for daily practice was outlined.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State

University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022.

National Spine Management West Conference 2022, **Communicating with the Spine Surgeon** - Detailed review of the scientific literature supporting interprofessional collaboration between the spine surgeon and the Doctor of Chiropractic was presented. Emphasis on updated needs of the spine surgeon with focus on the understanding of pre and post-surgical chiropractic care. Literature updates and documentation requirements were discussed. Specific talking points are provided for telecommunication with the spine surgeon. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

Clinical Grand Rounds – **Chiropractic Management of a L5-S1 Lumbar Disc Extrusion**, Review of objective muscle weakness as the primary indication for surgical interventions in patients with intervertebral disc herniations and extrusions was presented. Discussion of parameters for physical examination findings to warrant ordering advanced imaging and surgical consultation. Overview of rationale for evaluation of spinal central canal in patients with abnormal neurological findings was reviewed. Duties of a Spine Management Physician™ in the diagnosis and co-management of patients with intervertebral disc extrusions was outlined. Clinical correlation and coordination of care was detailed including timing of advanced imaging order and surgical referrals. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

Clinical Grand Rounds – **Chiropractic Spine Management, Role of Diagnostic Injections in Spinal Disorders** - Review and discussion of objective data derived from ordering diagnostic spinal injections. Patient triage in relation to facet joint injury, ligament laxity, radiculopathy, herniation of the intervertebral disc and sacroiliitis was outlined. Patient injury data from physical examination, provocative testing and diagnostic imaging was correlated clinically with response to diagnostic block after appropriate referral to medical specialty. The sacroiliac joint as an underdiagnosed source of chronic lower back pain was outlined. Review of gold standard for diagnosis of sacroiliitis, fluoroscopy-guided block was presented. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

Clinical Grand Rounds – Chiropractic Spine Management, **MRI Sequences and Imaging Acquisition – detailed discussion of MRI physics and imaging acquisition sequences in clinical practice**. Thorough review of image intensity definitions and the correlation to tissue type including nerve, cerebral spinal fluid, muscle, bone, ligament, and tendon. Overview of fat suppression techniques including STIR and FLARE utilization and clinical necessity. Discussion of sequence categories including Proton Density, T1, T2 and Diffusion Weighted was presented. Overview of Flow Sensitive sequences was briefly presented. Spine Echo (SE), Gradient Echo (GE), Inversion Recovery (IR) and Echoplanar Imaging (EPI) were outlined and contrasted in clinical context. Requirements for MRI examination were reviewed. Updated information was presented on MERGE imaging in the cervical spine. Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

Clinical Grand Rounds – **Chiropractic Spine Management and Pain Categorization, Review of published categorization of pain generation by the International Association for the Study of Pain including nociceptive, neuropathic and nociplastic sources.** *Discussion on the history and relevance of the Delphi process of conducting consensus-based research was presented. Origins of nociceptive, neuropathy and nociplastic sources of pain was outlined including non-neural tissue, the somatosensory nervous system as well as the categorization of pain syndromes with non-specific findings on physical examination and imaging studies. Review of the importance of quantitative testing, clinical examination and clinical correlation was presented and related to the academic approach to the categorization of pain.* Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

Clinical Grand Rounds – **Chiropractic Management of Head and Neck Trauma,** *Review of types of tissue injured in head and neck trauma including muscle, nerve, intervertebral disc, ligament, spinal cord, vertebral body, artery, or vein was presented. Clinical correlation of mechanism of injury, patient history, subjective complaint, physical examination, advanced imaging findings and electrodiagnostic testing was emphasized. Interprofessional communication and review of any diagnostic dilemmas was reviewed. Spinal compressive radiculopathy versus acute nerve injury without prolonged compression was presented. Differential diagnosis between ligament, intervertebral disc and nerve pathology was outlined in depth and presented. Emphasis was presented on spinal nerve manifestations of ligament injury in the cervical spine.* Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

Clinical Grand Rounds – **Chiropractic Management and the Carotid Space,** *Outline and discussion of the anatomical boundaries of the carotid space was presented. Review of the aortic arch, brachiocephalic trunk, common carotid, carotid bifurcation, internal carotid, external carotid, Circle of Willis, and vertebral artery pathways was demonstrated. Review of correlation of patient history, physical examination and findings on advanced imaging was presented. Clinical review of dysphagia and odynophagia were presented and discussed clinically in the context of the physical examination and patient pain patterns. Vascular anomalies and their general asymptomatic presentation were emphasized. Etiology of arterial dissections was outlined with emphasis on differentiating spontaneous versus traumatic characterization. Advanced imaging of carotid space pathology was presented with catheter angiography demonstrated as the gold standard.* Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

Diagnosis and Management of Synovial Cyst of the Spine, Review and outline of the diagnosis and management of a spinal synovial cyst was presented. Discussion surrounding patient history, physical examination and advanced imaging findings was outlined. Structure and appearance of synovial cyst on T1 and T2 weighted MRI was presented, and the benign nature of these lesions was reviewed. Indications for specialist referral and patient centered management ranging from watchful waiting to surgical intervention due to neurologic compromise was reviewed. Advanced imaging differences between plain film radiographs, CT and MRI was outlined and discussed. MRI signal on T2 weighted image in relation to cerebral spinal fluid was

highlighted. Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

Diagnosis and Management of Lumbar Arachnoiditis, *Outline of the causes of arachnoiditis in the human spine was presented. Specific focus was on a case of lumbar arachnoiditis involving the cauda equina evidenced on T1, T2 sagittal and axial MRI. Treatment options and lack of curative interventions was presented. Relevant anatomy of the lumbar spine including cauda equina, conus medullaris, filum terminale, dura mater, pia mater and arachnoid mater were reviewed in detail. Review of arachnoiditis and chiropractic adjustment were discussed as well as interprofessional coordination of care with interventional pain management and surgical consultation.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

Diagnosis and Management of Lumbar Disc Herniation, *Case review of traumatically induced 10mm L5-S1 intervertebral disc extrusion was presented. Correlation of neurological examination including testing of myotomes, dermatomes and deep tendon reflexes was presented. Detailed review of sagittal T1, sagittal T2, axial T1, axial T2 as well as STIR images were presented. Clinical referral for surgical consultation was outlined and clinical rationale was presented. Review of the different between anatomical and functional sources of pain were outlined with a focus on biomechanical parameters such as pelvic incidence.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

Diagnosis and Management of Post-Surgical Cervical Facet Syndrome, *A case of persistent and worsening neck and left shoulder pain post-surgical fusion was presented. Pre and post plain film and advanced imaging slides were reviewed and correlated clinically to left sided mid-scapular pain. Physical examination including orthopedic and neurological testing was discussed in correlation to presenting symptoms. Differential diagnosis of radiculopathy, radiculitis, discogenic pain, scapular myofascial syndrome and thoracic intersegmental dysfunction was presented. Cervical facet joint referral patterns were reviewed and outline of referral for diagnostic facet joint block was discussed.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

Diagnosis and Management of Anterior Sacral Contusion, *Overview and discussion of contusion of the anterior sacral ala in an elite college cross-country runner. Physical examination outlining range of motion, neurological and orthopedic examination was reviewed and correlated to the subjective complaint of right sided lower back pain. Misdiagnosis was presented and long-standing symptoms resulting in possible cessation of play for this athlete. Discussion of interprofessional communication with the neuroradiologist and subsequent MRI order with slices through the anterior sacrum was reviewed and presented.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2022

Chiropractic Diagnosis and Management of Vertebral Compression Fracture, *Review of the influence of osteoporosis on development of vertebral compression fracture was reviewed and detailed in comparison to neoplasm. Utilization of MRI as the gold standard for evaluating the age of and pathophysiology was discussed and presented. Absorptiometry was outlined and presented in relation to monitoring bone density. Interprofessional communication of absolute versus relative contraindications to conservative care and spinal manipulation was outlined and reviewed. Review of the three columns of vertebral architecture was detailed.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2021

Chiropractic Diagnosis and Management of Lumbar Ligament Laxity, *Detailed outline of injury thresholds of the anterior longitudinal, posterior longitudinal and ligamentum flavum was presented in the lumbar spine. Review of structural and physiological properties relating to stress/strain curve of the above ligaments. Outline of the toe region, linear region and failure region was demonstrated. Transversely isotropic material properties of spinal ligaments was included and correlated to chiropractic care and impairment rating using the AMA Guides to the Evaluation and Management 5th and 6th editions.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2021

Clinical Grand Rounds – **Chiropractic Diagnosis and Management of Cervical Ligament Laxity**, *Detailed outline of injury thresholds of the anterior longitudinal, posterior longitudinal and ligamentum flavum was presented. Review of structural and physiological properties relating to stress/strain curve of the above ligaments. Outline of the toe region, linear region and failure region was demonstrated. Transversely isotropic material properties of spinal ligaments was included and correlated to chiropractic care and impairment rating using the AMA Guides to the Evaluation and Management 5th and 6th editions.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2021

Clinical Grand Rounds – **Chiropractic Management of Cervical Myelopathy**, *Review of all relevant spinal anatomy in the cervical and lumbar spine including vertebral bodies, central canal, neuroforamen, ligamentum flavum, anterior and posterior longitudinal ligaments, facet capsule, interspinous ligament, supraspinous ligament and spinal cord anatomy. Review of spinal cord anatomy included white and gray matter, ventral and dorsal nerve roots, spinal nerve including the dura mater, arachnoid mater and pia mater. Specific review of patient history, mechanism of injury, physical examination including neurological and orthopedic evaluation as well as criteria for ordering and reading advanced imaging such as MRI and CT were presented in relation to cervical myelopathy, spinal cord compression and myelomalacia. Patient centered; consensus driven clinical diagnosis including interprofessional communication was presented, specific presentation relating to diagnostic outcomes and management. Attention was given to MRI and CT myelogram in both the uncomplicated and complicated patient.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2021

Clinical Grand Rounds – **Chiropractic Management of Lumbar Facet Syndrome**, *Discussion of the clinical presentation of lumbar facet syndrome with specific attention paid to the pathogenesis and differential diagnosis of lumbar disc herniation, disc bulge and radiculopathy. Review of patient history, mechanism of injury, physical examination including neurological and orthopedic evaluation as well as criteria for ordering and reading advanced imaging such as MRI and CT were presented. Discussion involving ligamentous structures such as interspinous ligament, supraspinous ligament and facet capsules was presented. Plain film static and dynamic radiographic studies were reviewed as well as specific sclerotogenous referrals patterns of facet mediated pain. Patient centered; consensus driven clinical diagnosis including interprofessional communication was presented, specific presentation relating to diagnostic medial branch blocks and pain management referral was emphasized.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2021

Clinical Grand Rounds – **Chiropractic Management of Cervical Facet Syndrome**, *Review of the pathogenesis and morphological presentation of cervical facet syndrome. Outline of patient history, physical examination including neurological and orthopedic evaluation as well as criteria for ordering and reading advanced imaging such as MRI and CT were presented. Discussion involving ligamentous structures such as interspinous ligament, supraspinous ligament and facet capsules was presented. Plain film static and dynamic radiographic studies were reviewed as well as specific sclerotogenous referrals patterns of facet mediated pain. Patient centered; consensus driven clinical diagnosis including interprofessional communication was presented, specific presentation relating to diagnostic medial branch blocks and pain management referral was emphasized.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2021

Clinical Grand Rounds – **Chiropractic Management of Lumbar Disc Herniation**, *Review of the pathogenesis and morphological presentation of lumbar intervertebral disc herniation. Outline of patient history, physical examination including neurological and orthopedic evaluation as well as criteria for ordering and reading advanced imaging such as MRI and CT were presented. Plain film static and dynamic radiographic studies were reviewed. Patient centered; consensus driven clinical diagnosis including interprofessional communication was presented.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2021

Clinical Grand Rounds – **Chiropractic Management of Cervical Radiculopathy**, *Characterization of cervical radiculopathy in terms of neurological dysfunction including compression and inflammation of the spinal nerves was reviewed. Cervical spondylosis and intervertebral disc herniation as causative factors were presented and discussed. Conservative care as well as surgical intervention were presented and correlated to response to care and clinical findings. Outline of patient history, physical examination including neurological and orthopedic evaluation as well as criteria for ordering and reading advanced imaging such as MRI and CT were presented. Plain film static and dynamic radiographic studies were reviewed. Patient centered; consensus driven clinical diagnosis including interprofessional communication was presented.* National Spine Management Group, LLC, Federation of

Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2021

Clinical Grand Rounds – **Chiropractic Management of Cervical Disc Herniation**, *Clinical differences between etiology and morphology were reviewed and presented. Outline of patient history, physical examination including neurological and orthopedic evaluation as well as criteria for ordering and reading advanced imaging such as MRI and CT were presented. Plain film static and dynamic radiographic studies were reviewed. Patient centered; consensus driven clinical diagnosis including interprofessional communication was presented. Specific anatomical location of cervical intervertebral disc herniation was presented and correlated to neurological findings on physical examination.* National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Buffalo, NY, 2021

2022 Trends in Spinal Healthcare, Analyzing evidenced-based spinal healthcare trends in both utilization and necessity and understanding the marketplace. *The use of evidenced-based demonstrative documentation in reporting treatment pathways in triaging spinal pathobiomechanics.* Academy of Chiropractic Post-Doctoral Division, Cleveland University-Kansas City, Long Island, NY, 2021

MRI Spine Clinical Case Grand Rounds, **Clinical case review of MRI's including sagittal, axial, T1, T2, STIR, and proton density sequences.** *Identified will be the vertebrae, spinal cord, discs, nerve roots, thecal sac, posterior longitudinal ligament, epidural veins, and fat saturation pulses. Pathology will include bulges, herniations, protrusions, extrusions, myelomalacia, cord edema, and Schmorl's nodes. Learn how to collaborate effectively with radiologists, neuroradiologists, and neurosurgeons on the clinical findings.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2021

Chiropractic vs. Physical Therapy vs. Medical Case Management and Outcomes, *Analyzing evidence-based outcomes in triaging non-anatomical lesions. The analysis of neuro-biomechanical pathological lesions defines primary spinal lesions and removes the dogma of non-specific back pain. Managing collaborative relationships with medical primary providers and specialists in clinical practice.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2021

MSK Extremity Radiological Interpretation, *Utilizing both MRI and x-ray in identifying via x-ray and advanced imaging extremity instabilities from ligamentous, osseous or neoplastic derangement.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2021

Demonstrative Narrative and Evaluation and Management Report Writing, *Effectively creating demonstrative medical-legal documentation and meeting the needs of the courts, and making your "4-Corner" (narrative) report to build your reputation as an evidence-based provider. The step-by-step minutiae of building a report, accomplishing report writing timely and effectively by understanding the regulatory and administrative rules. Learn how to educate the*

lawyer on bodily injury through evidence-based demonstrative reporting. Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2021

Ligament/Connective Tissue Physiology and Pathology, *Master-Class in ligaments; anatomy, physiology, vascularization, neurological innervation, tissue repair and how they all relate to clinical practice. Ligament pathology correlating to the mechanisms of patho-neuro-biomechanical lesions (vertebral subluxation complex). Also, how ligaments play a critical role in the chiropractic spinal adjustment and in defining the chiropractic spinal adjustment mechanisms.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2021

Stroke Evaluation and Risk Factors in the Chiropractic Practice, Diagnosing, triaging, and documenting headaches, migraines, and vascular incidents (stroke) in the primary provider's office. *Imaging protocols based upon history and clinical presentation will be presented, along with analyzing imaging findings in determining the etiology. There will be an extensive question and answer session following the instructional presentation.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2021

Age-Dating Herniated Discs and Trauma, Age dating herniated discs and trauma *is a critical skill for an expert in spine. It combines the clinical skills of interpreting X-ray, MRI, and other imaging modalities with a clinician's understanding of joint pathology. This level of expertise is critical when collaborated with other physicians or working in the medical-legal environment as an expert. Age dating pathology is also central to creating a prognosis on your patient's recovery and must be evidence-based in rationale.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2021

Clinical Grand Rounds in **Spinal Biomechanics, Case reviews utilizing E/M, MRI, and x-ray mensuration report to conclude an accurate diagnosis, prognosis, and treatment plan.** *Common diagnosis requiring interprofessional collaboration with a discussion of diagnostic dilemmas and proper communication methods.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2021

Neurosurgical Grand Rounds, **A clinical discussion of collaborating with neurosurgeons on spinal cord and spinal nerve root co-morbidities.** *Triaging cases with herniated, protruded, extruded, fragments discs and differentially diagnosing tethered cord, syringomyelia, traumatic Schmorl's Nodes, Myelomalacia, spinal cord edema, vacuum disc and other intra, and extra-dural lesions.* Academy of Chiropractic Post-Doctoral Division, Cleveland University- Kansas City, Long Island, NY, 2021

Extremity MRI & Xray Interpretation of the Shoulder, *Identifying normal anatomy on both MRI and x-ray, inclusive of osseous, connective tissue, and neurological structures. Identifying fractures in the adult and pediatric cases. Differentially diagnosing various arthritic etiologies*

of osseous derangement. Cleveland University Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Extremity MRI & Xray Interpretation of the Shoulder, *Identifying fractures in the adult and pediatric cases. Differentially diagnosing various arthritic changes vs. benign and metastatic Tumors. Cleveland University Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021*

Extremity MRI & Xray Interpretation of the Elbow, *Identifying normal anatomy on both MRI and x-ray, inclusive of osseous, connective tissue, and neurological structures, identifying fractures in the adult and pediatric cases. Differentially diagnosing various arthritic etiologies of osseous derangement. Differentially diagnosing various arthritic changes vs. benign and metastatic Tumors. Cleveland University Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021*

Extremity MRI & Xray Interpretation of the Wrist, *Identifying normal anatomy on both MRI and x-ray, inclusive of osseous, connective tissue, and neurological structures, identifying fractures in the adult and pediatric cases. Differentially diagnosing various arthritic etiologies of osseous derangement. Differentially diagnosing various arthritic changes vs. benign and metastatic Tumors. Cleveland University Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021*

Extremity MRI & Xray Interpretation of the Hand, *Identifying normal anatomy on both MRI and x-ray, inclusive of osseous, connective tissue, and neurological structures, identifying fractures in the adult and pediatric cases. Differentially diagnosing various arthritic etiologies of osseous derangement. Differentially diagnosing various arthritic changes vs. benign and metastatic Tumors. Cleveland University Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021*

Extremity MRI & Xray Interpretation of the Hip, *Identifying normal anatomy on both MRI and x-ray, inclusive of osseous, connective tissue, and neurological structures. Identifying fractures in the adult and pediatric cases. Differentially diagnosing various arthritic etiologies of osseous derangement. Cleveland University Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021*

Extremity MRI & Xray Interpretation of the Hip, *Identifying fractures in the adult and pediatric cases. Differentially diagnosing various arthritic changes vs. benign and metastatic Tumors. Cleveland University Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021*

Extremity MRI & Xray Interpretation of the Knee, *Identifying normal anatomy on both MRI and x-ray, inclusive of osseous, connective tissue, and neurological structures. Identifying fractures in the adult and pediatric cases. Differentially diagnosing various arthritic etiologies of osseous derangement. Cleveland University Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021*

Extremity MRI & Xray Interpretation of the Knee, *Identifying fractures in the adult and pediatric cases. Differentially diagnosing various arthritic changes vs. benign and metastatic*

Tumors. Cleveland University Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Extremity MRI & Xray Interpretation of the Hand, *Identifying normal anatomy on both MRI and x-ray, inclusive of osseous, connective tissue, and neurological structures, identifying fractures in the adult and pediatric cases. Differentially diagnosing various arthritic etiologies of osseous derangement. Differentially diagnosing various arthritic changes vs. benign and metastatic Tumors.* Cleveland University Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Extremity MRI & Xray Interpretation of the Foot, *Identifying normal anatomy on both MRI and x-ray, inclusive of osseous, connective tissue, and neurological structures, identifying fractures in the adult and pediatric cases. Differentially diagnosing various arthritic etiologies of osseous derangement. Differentially diagnosing various arthritic changes vs. benign and metastatic Tumors.* Cleveland University Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Documentation, Demonstrative and Compliance, *Elements of Evaluation and Management codes 99202-99203-99204-99205, inclusive of complexity of management and time components. Demonstrative documentation of spinal-related pain generators; spinal cord, thecal sac, myelomalacia, spinal nerve root insult, connective tissue, recurrent meningeal nerves.* Academy of Chiropractic Post-Doctoral Division, Cleveland University Kansas City, Chiropractic and Health Sciences, Long Island, NY, 2021

Chiropractic-Legal Ethics, The academic and court standards for documenting an *Evaluation and Management encounter with the utilization of accurate CPT Coding. Accurately documenting your credentials based upon earned credentials.* Cleveland University Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

Chiropractic-Legal Ethics, The clinical standard for ordering diagnostic tests as indicated. *This includes advanced testing as MRI, CAT Scans and electrodiagnostics as electromyogram, nerve conduction studies, vestibulo-electronystagmography and somatosensory evoked potentials. The failure to order indicated testing and how it creates a public health risk and will negatively reflect on your license and reputation.* Cleveland University Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

Chiropractic-Legal Ethics, Documenting and communicating your credentials in a manner consistent with licensure boards and the courts. *Communicating sub-specialties as awarded through formal academic accomplishments and utilizing that level of education to better understand and explain pathology.* Cleveland University Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

Chiropractic-Legal Ethics, Understanding ethical relationships about anti-kickback laws, fee-splitting and appropriate hiring practices in the clinical arena. *How to use your initial patient documentation to conclude a case and ensure you are within the ethical boundaries.* Cleveland University Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

Case Management, Spinal MRI and Documentation Documenting Herniated Discs, Age-Dating Disc Pathology, and Connective Tissue Pathology as Sequella to Trauma, *Herniated Discs and Connective Tissue Pathology, differentially diagnosing herniated discs vs. normal and bulging discs and protruded, extruded and fragmented discs. Normal vs. Pathological connective tissues and age-dating herniated discs.* PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Case Management, Spinal MRI and Documentation, Case Management of Traumatic Spinal Injuries, *Understanding flexion-extension cervical injuries and diagnosing connective tissue pathology. Determining impairments and the literature-based standard for permanent injuries.* PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Case Management, Spinal MRI and Documentation, Managing Herniated and Bulging Discs, Serious Injury in Non-Herniated Cases from Trauma, *Spinal disc morphology, and innervation. Herniated, bulged, protruded, and sequestered disc characteristics and management. Literature-based documentation requirements for no-disc spinal injuries.* PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Case Management, Spinal MRI and Documentation, Herniated Discs and Permanent Brain Malfunction & Biomechanical Failure, *A case-study of a post-traumatic herniated disc and related brain malfunction supported by contemporary literature, MRI acquisition, and necessity protocols.* PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Case Management, Spinal MRI and Documentation, Demonstrative Documentation of Disc Herniation and MRI Physics, *Understanding the documentation requirements to demonstratively show spinal disc lesions in reporting pathology. Understanding the physics of a nucleus resonating in T1 and T2 weighted imagery.* PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Case Management, Spinal MRI and Documentation, Post-Traumatic Herniated Discs, Related Migraines-Headaches & Strain/Sprain Permanences, *Relationship of headaches, and migraines to cervical spine disc herniation, clinical rationale for ordering MRI's and the relationship of ligamentous pathology to spinal trauma.* PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Case Management, Spinal MRI and Documentation, Documentation of Low-Speed Crashes in Determining Etiology of Serious Bodily Injuries, *Documentation requirements during the evaluation, and management encounter to understand the etiology of spinal injuries. Having a complete understanding the forces involved to conclude a differential diagnosis, while concurrent ruling malingerers, if applicable.* PACE Approved for the Federation of Chiropractic

Licensing Boards, Cleveland University Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Documentation in Medical Collaborative Cases, *Concluding an E&M report in cases involving medical primary care providers of medical specialists that have complicated case histories, significant risk factors, and inconclusive findings. Triage and management of complicated cases requiring the clinical evaluation, advanced imaging and electrodiagnostics.* Academy of Chiropractic, Cleveland University Kansas City, Chiropractic and Health Sciences, Long Island, New York, 2021

MRI Spine Interpretation and Protocols, *Contemporary acquisition protocols including slice thicknesses and sequences inclusive of the ordering process. Interpretation of axial, sagittal and coronal views in T1, T2 and stir views inclusive of the disc, spinal cord, extra-dural and intra-dural pathology.* Academy of Chiropractic, Cleveland University Kansas City, Chiropractic and Health Sciences, Long Island, New York, 2021

Ethics and Medical Collaboration, *Having referral relationships with emergency rooms, neurosurgeons, orthopedic surgeons, pain management specialists, neurologists, neuroradiologist and medical primary care providers based upon clinical dilemmas that processed after a thorough history, examination and imaging if clinically indicated to conclude diagnostic dilemmas. Utilizing evidence-based protocols and acquisition of images and treatment pathways, collaborating with medical specialists and primaries to conclude and accurate treatment plan.* Academy of Chiropractic, Cleveland University Kansas City, Chiropractic and Health Sciences, Long Island, New York, 2021

Documentation in a Medical – Legal and Insurances, *Constructing and concluding an E&M (99202-99205) report that accurately reflects the history, clinical findings and management of trauma cases that concurrently meets the needs of both the carriers in the courts and ethical relationship that concurrently matches the standards of both contemporary academia requirements and a contemporary literature-based standard.* Academy of Chiropractic, Cleveland University Kansas City, Chiropractic and Health Sciences, Long Island, New York, 2021

Connective Tissue Spinal Disc Permanent Pathology, Primary Spine Care, *Herniated, bulged, protruded and extruded discs, etiology and morphology. Age-dating disc pathology inclusive of Modic changes, piezoelectric effect, Wolff's Law and radicular clinical presentation.* Academy of Chiropractic Post-Doctoral Division, Cleveland University – Kansas City, Long Island, NY, 2021

Connective Tissue Pathology and Research, Primary Spine Care, *Utilization in spinal models considering the opioid abuse and various spinal models in contemporary health care. Care paths for mechanical spine pain and the evidence for conservative chiropractic care.* Academy of Chiropractic Post-Doctoral Division, Cleveland University – Kansas City, Long Island, NY, 2021

Bio-Neuro-Mechanical Lesions and Spine Care, Primary Spine Care, *Mechanoreceptor, proprioceptor, nociceptor innervation and control of the spinal system with central nervous system action and interaction. The integration of the pain processing network and the HPA Axis*

(hypothalamus, adrenal and pituitary) with the chiropractic spinal adjustment. Academy of Chiropractic Post-Doctoral Division, Cleveland University – Kansas City, Long Island, NY, 2021

Ethics, Documentation and Research, Primary Spine Care, Maintaining ethical Interprofessional relationships based upon an evidenced based practice inclusive of triage, diagnostics and reporting. Creating thorough documentation that reflects your complete findings encompassing descriptive ICD-10 codes and concludes the presence or absence of pathology. Academy of Chiropractic Post-Doctoral Division, Cleveland University – Kansas City, Long Island, NY, 2021

Primary Spine Care 2: **Spinal Trauma Pathology, Morphology of healthy and traumatized connective tissue and the permanency implication of adhesions, spinal disc morphology in the healthy and pathological patient as sequella to trauma in relationship to bulges, herniations, protrusions, extrusions and sequestrations. Aberrant spinal biomechanics and negative sequella to trauma.** Cleveland University – Kansas City, Academy of Chiropractic, Setauket, NY, 2021

Primary Spine Care 2: **Utilizing Research in Trauma, The ability of your electronic health records to convey tissue pathology while documenting case studies, field experiments, randomized trials and systematic literature reviews, Introducing evidence based macros in documentation to support the literature and necessity of care.** Cleveland University – Kansas City, Academy of Chiropractic, Setauket, NY, 2021

Primary Spine Care 2: **Chiropractic Evidence, Analyzing segmental pathology, adjusting vs. mobilization with cervicogenic headaches, Opioid alternatives and case management of mechanical spine pain based upon outcome studies.** Cleveland University – Kansas City, Academy of Chiropractic, Setauket, NY, 2021

Primary Spine Care 2: **Chiropractic Spinal Adjustment Central Nervous System Processing, Literature reviews of mechanoreceptor, proprioceptor and nociceptor stimulation of later horn gray matter with periaqueductal stimulation affecting the thalamus and cortical regions with efferent distribution in disparate regions of the body in both pain and systemic stimulation.** Cleveland University – Kansas City, Academy of Chiropractic, Setauket, NY, 2021

2021 Spine Management Conference – West – **The Spine Management Physician – discussion of the Spine Management Physician concept utilizing supportive evidence** was presented. Outline of trends in spinal pain management versus a curative model was discussed. Credentials, training, and triage methods were demonstrated for the Doctor of Chiropractic to increase proficiency in spine management. Scientific evidence supporting the need for a portal of entry physician dedicated to spine management oversight was outlined. Key differences between Spine Management Physician and Primary Spine Care were discussed. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University of Health Sciences, College of Chiropractic, Kansas City, 2021

2021 Spine Management Conference – West – **Chiropractic Evidence – Pain Management Care– outline of neurological mechanisms of central nervous system modulation of pain in the human body** was demonstrated. Specific peer-reviewed, medically indexed evidence was presented starting with 2012 Systematic Review outlining spinal manipulation’s effectiveness in

pain management. Current evidence as well as future trends were discussed and presented. Neurological downregulation was discussed including afferent and efferent neurological pathways regulated by the dorsal horn of the spinal cord. Interprofessional communication and compliant documentation of the pain management phase of care was emphasized. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University of Health Sciences, College of Chiropractic, Kansas City, 2021

2021 Spine Management Conference – West – **Chiropractic Evidence – Corrective Care – specific trends in the biomechanical assessment of the human spine** were provided and discussed. Emphasis was placed on the transfer of laboratory based biomechanical science and clinical utilization of biomechanical parameters in the diagnosis and correction of spinal biomechanical pathology. Peer reviewed medically indexed publications defining symptomatic vs asymptomatic were presented and discussed. Sagittal alignment and its relation to pelvic incidence was reviewed in relation to asymptomatic parameters. Interprofessional communication relating to biomechanical stabilization and spinal rehabilitation was outlined and reviewed. Review of a regional versus whole spine model of spine management was presented emphasizing the needs of the patient, primary care physician, pain management physician and spine surgeon. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University of Health Sciences, College of Chiropractic, Kansas City, 2021

2021 Spine Management Conference – West – **Physical Examination Workflows –Cervical Spine** – detailed review of cervical spinal physical examination with emphasis on clinical triage between anatomical and biomechanical sources of spine pain. Neurological evaluation of the neck and surrounding structures was reviewed including pathological reflexes, assessment of vascular compromise and myelopathic findings. Detailed patient screening was stressed and its correlation to physical examination, red flags and relative vs absolute contraindications to chiropractic care was presented. Patient positioning and efficient processes were reviewed and demonstrated. Details relating to cervical spine and orthopedic testing was discussed. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University of Health Sciences, College of Chiropractic, Kansas City, 2021

2021 Spine Management Conference – West – **Physical Examination Workflows – Thoracic and Lumbar Spine and Pelvis** – outlines of thoracic, lumbar and pelvis physical examination were presented. Neurological evaluation of the lumbar spine and surrounding structures was reviewed including pathological reflexes, assessment of cauda equina syndrome and triage processes for neurologically compromised patients. Detailed screening was stressed and its correlation to physical examination, red flags and relative vs absolute contraindications to chiropractic care was reviewed. Patient positioning and efficient processes was reviewed and demonstrated. Details relating to lumbar spine and pelvic orthopedic testing was discussed. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University of Health Sciences, College of Chiropractic, Kansas City, 2021

2021 Spine Management Conference – West – **Interprofessional Communication and Reporting – review of electronic health record workflows** were presented and discussed with emphasis on CPT compliant and efficient reporting. The importance of communication with the patient's other healthcare providers was outlined and discussed. Specific needs of the primary care physician, pain management physician and spine surgeon were outlined and reviewed.

Details of simplified vocabulary and necessity of thoroughness were emphasized. Administrative workflows ensuring regular and continued communication of clinical documentation was provided. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University of Health Sciences, College of Chiropractic, Kansas City, 2021

2021 Spine Management Conference – West – **Patient Communication –communication techniques were discussed with emphasis on patient comprehension to increase compliance and reduce patient anxiety.** Details were presented on simplification of complex medical terminology to ensure understanding at the initial visitation as well as throughout the patient’s care plan. Conversational interaction and dissemination of health information at the appropriate comprehension level was provided. Proper reporting and interprofessional communication were emphasized in a wholistic approach to supporting the patient’s needs. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University of Health Sciences, College of Chiropractic, Kansas City, 2021

2021 Spine Management Conference – West – **Intervertebral Disc Morphology – detailed discussion of the morphological descriptions of intervertebral disc pathology in the cervical, thoracic, and lumbar spine** was presented. Differential diagnosis of disc bulge, herniation, protrusion, extrusion, and sequestration were presented. Attention was given to the five grades of annular fissure associating circumferential, radial, and transverse morphology. High intensity zone (HIZ) was discussed in detail as well as its correlation to acute inflammatory fluid. Specific MRI images were presented and correlated to consensus driven definitions of intervertebral disc pathology. Pre-existing degenerative changes in the human spine such as disc osteophyte complex, spondylosis, increased innervation of the intervertebral disc and endplate changes were discussed and correlated to acute findings on MRI. In depth discussion of the difference between morphology and etiology of intervertebral disc pathology was outlined. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University of Health Sciences, College of Chiropractic, Kansas City, 2021

2021 Spine Management Conference – West – **Ligamentous Response to Traumatic Injury – anatomical review of spinal ligaments including nerve supply and formation of scar tissue post injury** was presented. Function and histological composition were detailed and clinically correlated to physiological thresholds. Injury thresholds were also outlined and compared to the AMA Guides to the Evaluation of Permanent Impairment 5th and 6th edition. Detailed review of radiographic findings in the cervical and lumbar spine in the presence of ligamentous injury was reviewed and presented. Clinical criteria supporting the diagnosis of ligament injury and ligament laxity including patient history, physical examination, radiographic findings, and advanced imaging was presented. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University of Health Sciences, College of Chiropractic, Kansas City, 2021

2021 Spine Management Conference – West – **Causality and Spinal Ligamentous Injury - detailed outline of acute versus chronic spine injury findings** were presented. Reliable grading systems for phases of spinal degeneration was reviewed and discussed. Scientifically validated measuring process for intervertebral disc height and the 5 Grades of spinal degeneration proposed by Kettler were outlined. Specific discussion was presented in the differential diagnosis of ligament laxity due to degenerative process and acute ligamentous injury

in the functional spinal unit with specific examples of radiographic and advanced imaging findings. Clinical correlation with Modic I, Modic II and Modic III endplate changes including cadaver specimens was presented. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University of Health Sciences, College of Chiropractic, Kansas City 2021
2021 Spine Management Conference – West – Differential Spinal Tissue and Spinal Injury Triage – review of spinal tissue types and their response to physical stress and injury was presented. Prognostic factors in patient management were presented in relation to injury to spinal musculature, nerve tissue, ligamentous tissue, intervertebral disc, and bone. Tissue based triage, patient and interprofessional communication was emphasized and stressed. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University of Health Sciences, College of Chiropractic, Kansas City, 2021

2021 Spine Management Conference – West – **Innervation of Spinal Structures –specific reviewed of the anatomical innervation of pain generating structures in the human spine was presented. Scientific chronology of nerve supply discovery** was presented and discussed. Increased innervation of the degenerating intervertebral disc was presented and supported with contemporary scientific evidence. Spinal ligamentous structures as pain generating entities were also reviewed including anterior longitudinal ligament, posterior longitudinal ligament, supraspinous ligament, interspinous ligament and facet capsule. Clinical correlation to patient history, physical examination and imaging findings was emphasized with specific discussion on interprofessional triage and patient management. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University of Health Sciences, College of Chiropractic, Kansas City, 2021

Primary Spine Care - **Credentials and Knowledge Base**, *The credentials and knowledge based from an academia perspective when cooperatively treating in a collaborative environment inclusive of understanding pathology and mechanical spine issues.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

Primary Spine Care - **Spinal Biomechanical Engineering and MRI Spine Interpretation**, *Integrating Spinal Biomechanical Engineering and MRI Spine Interpretation into a primary spine care model, inclusive of necessity and acquisition protocols. A comprehensive review the latest evidence in documenting mechanical issues.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

Primary Spine Care - **Hospital Administration, Triage, Clinical Requirements and Collaborative Relationships with Medical Specialists**, *Understanding hospital and medical specialist's care paths for mechanical spine pathology and integrating the doctor of chiropractic in the hospital and allopathic treatment protocols.* Cleveland University – Kansas City, Long Island, NY, 2021

Primary Spine Care - **Contemporary Spine Research and Documentation**, *Central nervous system connection and the thalamus, hypothalamus connection in both ascending and descending central pathways with neuro-endocrine implications that have the mechanisms to be a component of Schizophrenia, Dementia and Alzheimer's with a linear relationship to the chiropractic spinal adjustment and chronic pain.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, **Interpretation sequencing of STIR, T1, T2, Axial and Sagittal acquisitions. Landmarks, physics, and literature-based definitions of disc and osseous pathology**, *Visualizing, diagnosing, and documenting cervical and lumbar anatomy vs. pathology*. Academy of Chiropractic Post-Doctoral Division, Accreditation Council for Continued Medical Education in conjunction with The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, **Visualizing, diagnosing, and documenting lumbar spine sequencing**, *disc herniations, neural canals, cauda equina, conus medullaris, nerve sleeves, canal stenosis grading, and vertebral width vs. height in determining segmental remodeling. Diagnosing thecal sac abutment, central canal root compression and ligamentum flava involvement*. Academy of Chiropractic Post-Doctoral Division, Accreditation Council for Continued Medical Education in conjunction with The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, **Case study visualizing, diagnosing, and documenting cervical spine** sequencing, *disc herniations, neural canals, cauda equina, conus medullaris, and vertebral width vs. height in determining segmental remodeling. Identifying the Pons, Occipital junction, and spinal cord to identify Chiari I malformations*. Academy of Chiropractic Post-Doctoral Division, Accreditation Council for Continued Medical Education in conjunction with The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, **Visualizing, diagnosing, and documenting lumbar spine** sequencing, *disc extrusion type herniations, neural canals, cauda equina, conus medullaris, spondylolisthesis, degenerative spondylolisthesis, disc degeneration, neural canal and central root compressions, central canal stenosis. Varices vs. herniations, and multiple level disc pathology with biomechanical failures*. Academy of Chiropractic Post-Doctoral Division, Accreditation Council for Continued Medical Education in conjunction with The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, **Visualizing, diagnosing, and documenting cervical spine** sequencing, *disc extrusion type herniations, neural canals, disc degeneration, thecal sac compression, central canal stenosis, cord displacement, reversal of cervical curve, Chiari I malformation. Identifying spinal biomechanical failure in MRI sequencing, with visualizing ligamentous pathology as cause for failure. Differentially diagnosing recent vs. older trauma based upon edematous signal in T1, T2, and STIR images*. Academy of Chiropractic Post-Doctoral Division, Accreditation Council for Continued Medical Education in conjunction with The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, **Visualizing, diagnosing, and documenting cervical spine** sequencing, *multiple disc extrusion type herniations, vertebral remodeling, intradural tumor displacing the spinal cord visualized in T1, T2, and STIR sequences, neural canal stenosis,*

disc degeneration, thecal sac compression, central canal stenosis, cord displacement, reversal of cervical curve, Chiari 1 malformation, and identifying of inferior brain structures. Academy of Chiropractic Post-Doctoral Division, Accreditation Council for Continued Medical Education in conjunction with The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, **Visualizing, diagnosing, and documenting 1) improper sequence acquisitions invalidating interpretation 2) incomplete study invalidating interpretation 3) visualizing, diagnosing, and documenting lumbar spine sequencing, multiple disc extrusion type herniations, vertebral remodeling, multiple thecal sac compressions, neural canal stenosis, disc osteophyte/ridging complex, central canal stenosis, spondylolisthesis. Identifying the spleen, liver, kidneys, inferior vena cava, and psoas musculature on imaging.** Academy of Chiropractic Post-Doctoral Division, Accreditation Council for Continued Medical Education in conjunction with The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, **Visualizing, diagnosing, and documenting cervical spine sequencing, cervical spondylosis, pathological spinal biomechanics, reversal of lordotic curve, and vertebral width vs. height in determining segmental remodeling, central herniation, thecal sac compression of the cord, identifying tongue, epiglottis, hyoid cartilage, pharynx, thyroid. Reviewing fat saturation sequences for osseous metastatic tumors and advanced degeneration.** Academy of Chiropractic Post-Doctoral Division, Accreditation Council for Continued Medical Education in conjunction with The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, **Visualizing, diagnosing, and documenting lumbar spine sequencing, degenerative disc disease, nerve root sleeve abutment, far lateral herniations vs. bulges, normal vs. dissected inferior vena cava aneurism, epidural fat as a space occupying lesion, facet arthropathy and edema, hypertrophy of ligamentum flava, and pseudo disc at the S1-S2 level.** Academy of Chiropractic Post-Doctoral Division, Accreditation Council for Continued Medical Education in conjunction with The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

MRI Spine Clinical Grand Rounds, **Visualizing, diagnosing, and documenting cervical spine sequencing utilizing T1 weighted images for pathology, inclusive of advanced degeneration and tumor detection. STIR in a fat saturated image for ligamentous pathology inclusive of the posterior longitudinal, ligamentous flava and interspinal ligaments. Normal clivus and odontoid for cerebellar tonsil location. Cerebral spinal fluid (CSF) flow and the utilization of the spinal cord's central canal for CSF transport.** Academy of Chiropractic Post-Doctoral Division, Accreditation Council for Continued Medical Education in conjunction with The State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences, Cleveland University - Kansas City, Long Island, NY, 2021

Clinical Grand Rounds – **Diagnosis of Ossification of Anterior Longitudinal Ligament** – discussion of the different types of Ossification of Anterior Longitudinal Ligament (OALL)

including Segmental, Continuous and Mixed in the sagittal plane. Review of axial classification including Flat, Nodular and Globular was presented. Anatomy of spinal ligaments including the anterior and posterior longitudinal ligament and their attachments was outlined. Context of dysphagia, its progression, symptoms and need for referral was reviewed and outlined. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, 2021

Clinical Grand Rounds –**Aberrant Spinal Motion and Degenerative Disc Disease** –research analysis of mechanic factors as etiology of intervertebral disc degeneration. Review of spinal tissue mechanics and their relation to mechanical stress was discussed and correlated to abnormal changes in the structure and composition of the intervertebral disc. Detailed discussion of ingrowth of pain transmitting nerve fibers into degenerative intervertebral discs and their relationship to acute and chronic pain was presented. Clinical correlation between congenital malformations of the spine, including scoliosis, kyphosis, spina bifida, spondylolysis and Klippel Feil syndrome), accidental back injury or ligament injury, occupational exposure and causing aberrant mechanical loading of lumbar spine, and intervertebral disc degeneration visible on T1, T2 and STIR MRI, sagittal and axial sequences was presented. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, 2021

Clinical Grand Rounds – **Chiropractic Management of Chronic Spine Pain** –Discussion of chronic spine pain as a Public Health issue and Chiropractic’s role in its diagnosis and management. Epidemiological statistics of chronic pain sufferers consulting Doctors of Chiropractic in the United States was presented. Outline of a spinal function and preventative model as opposed to a curative process was presented and reviewed. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, 2021

Clinical Grand Rounds – **Pelvic Incidence, Chiropractic and the Spine Surgeon** – detailed analysis of the historical publication of Pelvic Incidence as a integral part of sagittal spinal balance. Inter-professional communication with the surgeon using peer reviewed medically indexed biomechanical parameters was outlined and presented. Functional interaction between the spine and pelvis was demonstrated and discussed. Components of Pelvic Incidence, sacral slope, pelvic tilt and femoral heads were reviewed and demonstrated on plain film radiographs. Specific updated research regarding spinal pelvic balance and pelvic incidence measurements was provided. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, 2021

Clinical Grand Rounds – **Types of Annular Fissures on Advanced and Plain Film Imaging** – detailed review of the structure and function of the human intervertebral disc was presented including annulus fibrosis, nucleus pulposus, cartilaginous endplate and Sharpey’s fibers. Diagrams as well as MRI images were outlined and reviewed in both the cervical and the lumbar spines with particular focus on the difference between degenerative and traumatically induced changes. High intensity zone (HIZ) as a characteristic of injury to the posterior aspect of the annulus fibrosis best visualized on T1 sagittal MRI images. Detailed comparison of axial and sagittal T1, T2 and STIR images was outlined, discussed, and reviewed. National Spine

Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, 2021

Clinical Grand Rounds – **Diagnosis of Lumbar Facet Syndrome** –overview of the most common pain syndrome in the lumbar spine including societal burdens was presented. Discussion of facet joint arthrosis being the most frequent facet joint pathology in the human spine. Outline of level of correlation between clinical symptoms, physical examination findings and degenerative spinal conditions was discussed. Presentation of diagnostic facet block and the medical necessity of such a referral when indicated was outlined. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, 2021.

Clinical Grand Rounds – **Prevalence of Spinal Degeneration** – discussion of the clinical occurrence of spinal degenerative conditions such as Diffuse Skeletal Hyperostosis (DISH), central stenosis, foraminal stenosis, degenerative disc disease and osteoporosis was presented. Advanced imaging and plain film radiological utilization in the diagnosis of spinal degeneration was outlined and reviewed. Acute versus degenerative conditions in the spine were reviewed and detailed in relation to traumatic and non-traumatic events. Consensus driven parameters in the identification and rating of degenerative change severity was discussed. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences – 2021.

Forensic Documentation-Report Writing, *Report writing in a medical-legal case inclusive of causality, bodily injury, persistent functional loss and restrictive sequela from trauma. Demonstratively documenting bodily injury utilizing models, graphs and patient image of x-ray and advanced imaging.* Cleveland University, Kansas City, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Forensic Documentation- Demonstrative Documentation, *Demonstratively reporting spinal biomechanical failure and spinal compensation. How in a medical-legal environment to ethically report pre-existing injuries vs causally related current injuries and what is permissible in a legal proceeding.* Cleveland University, Kansas City, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Forensic Documentation- Reporting Direct Opinions , *Causality, bodily injury and persistent functional losses documented and reported in a medical-legal environment as your direct opinion. Avoiding hearsay issues to ensure ethical relationships.* Cleveland University, Kansas City, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Forensic Documentation- Initial, Final and Collaborative Reporting ,*Preparing demonstrative documentation in a medical-legal case ensuring that you are familiar with all other treating doctor's reports. Correlating your initial and evaluation and management (E&M) report and your follow-up E&M reports with the narrative upon maximum medical improvement documenting continuum of care.* Cleveland University, Kansas City, PACE Recognized by the

Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Forensic Documentation- Qualifications and Preparation of Documentation, *How to prepare your documentation for courtroom testimony and ensuring your qualifications are documented properly on an admissible, professional curriculum vitae. How to include indexed peer-reviewed literature in medical-legal documentation*, Cleveland University, Kansas City, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Forensic Documentation- Reporting Patient History and Credentials, *Preparing patient history in a medical-legal case based upon your initial intake forms and understanding the work, social, academic, household and social activities of your patient. Understanding and explaining your doctoral and post-doctoral credentials in the courtroom*. Cleveland University, Kansas City, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Forensic Documentation- Reporting Chiropractic Care and Injured Anatomy, *Preparing demonstrative documentation in a medical-legal case to report the bodily injuries of your patients, inclusive of loss of function and permanent tissue pathology*. Cleveland University, Kansas City, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Forensic Documentation- Reporting Temporary vs. Permanent Issues, *Preparing documentation in a medical-legal case ensuring that you can communicate permanent vs. temporary functional losses and permanent vs. temporary tissue pathology. How to maintain and explain ethical relationships in medical-legal cases*, Cleveland University, Kansas City, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Forensic Documentation- Reporting Bodily Injury, *How to report bodily injury and functional losses as supported by your credentials in a medical-legal case. Clinically correlating causality and permanent tissue pathology as sequela to trauma*, Cleveland University, Kansas City, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Forensic Documentation- Record Review and Documentation Reporting, *How to report records of collaborative treating doctors and communicating your scope of practice in the management of your case. How to ethically report your role as a doctor in medical-legal cases*, Cleveland University, Kansas City, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Clinical Grand Rounds – **Biomechanical Analysis in Patient Crash Injuries** – Detailed review of the difference between biomechanical and biomedical analysis of injuries was presented. Outline of necessity of the use of properly credentialed biomechanical and crash investigation professionals in the diagnosis, management and reporting of crash injuries. Review of specific research related to forces during Activities of Daily Living and those sustained in a crash were presented. Details of a proper biomechanical analysis were discussed and specific review of a

biomedical report omitting the mathematical calculations needed to determine force and injury potential was presented. Additional review of methods needed to determine expertise of the biomechanist or accident investigation was discussed. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, 2021.

Clinical Grand Rounds – **Advanced Imaging Upper Cervical Spine and Documentation** – Discussion and review of ligament injury in the upper cervical spine. Focus was on missed diagnosis due to a lack of imaging and interprofessional communication. Discussion of upper cervical anatomy including occipital condyles, C1/C2 articulation in both MRI, plain film and CT scanning was presented using imaging slides. Clinical documentation was reviewed with particular attention paid to clinical documentation errors from other providers. Discussion on case management and interprofessional communication to correct documentation errors was emphasized. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, 2021

Clinical Grand Rounds – **Mechanical Response of Damaged Human Cervical Spine Ligaments – discussion of the biomechanical properties of cervical spinal ligaments** under sub-failure loads. Ligaments discussed were the Anterior Longitudinal Ligament, Posterior Longitudinal ligament and the Ligamentum Flavum. Deformations exceeding physiological limitations were presented and reviewed. Grade I and Grade II injuries were outlined and discussed. Presentation included observed ligamentous injury significantly compromising ligament ability to give tensile support within physiological spinal motion. Findings were clinically correlated to long term sequelae in Alteration of Motion Segment Integrity and the AMA Guides to the Evaluation of Permanent Impairment 5th and 6th Editions. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, 2021.

Demonstrative Diagnosis and Documenting Spinal Pathology, Analyzing patient records, x-rays and MRI's in determining etiology of traumatically-induced pathological lesions. Clinically correlating the history, clinical findings, imaging findings and diagnosed bodily injuries to conclude and accurate diagnosis, prognosis, and treatment plan. Cleveland University - Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Demonstrative Diagnosis and Documenting Spinal Disc Injuries, Differentially diagnosing disc vs. posterior longitudinal ligaments vs. Thecal Sac vs. spinal cord vs. Ligamentum Flava pathology and insult. Identifying the borders of lesions and discerning between anatomic structures pathologically effected demonstrably. Cleveland University - Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2021

Medical-Legal Ethical Relationships, Documentation and Legal Testimony, *Report writing for legal cases, the 4 corners of a narrative and documenting damages with understanding defense medical documentation and consistent reporting of bodily injuries.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 20121

Medical-Legal Ethical Relationships, Documentation and Legal Testimony, Part 2, *Understanding report writing and the types of medical reports required for court inclusive of diagnosis, prognosis and treatment plans with requirements of reporting causality and permanency.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2021

Medical-Legal Ethical Relationships, Documentation and Direct Testimony, *Organizing your documentation and understanding all collaborative documentation and how it fits into your diagnosis, prognosis and treatment plan, Understanding the nuances of the functional losses of your patients related to their bodily injuries,* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2021

Medical-Legal Ethical Relationships, Documentation and Direct Testimony Part 2, *Utilizing demonstrative documentation in direct examination and communicating the results of your care concurrently with the written documentation and reporting an accurate diagnosis for all images.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2021

Medical-Legal Ethical Relationships, Documentation and Direct Testimony Part 3, *The evaluation, interpretation and reporting of collaborative medical specialists results and concluding an accurate diagnosis inclusive of all findings and reviewing all images to ensure an accurate diagnosis.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2021

Medical-Legal Ethical Relationships, Documentation and Direct Testimony Part 4, *Determining and documenting disabilities and impairments inclusive of loss of enjoyment of life and duties under duress and the evaluation and validation of pain and suffering.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2021

Medical-Legal Ethical Relationships, Documentation and Cross Examination Testimony, *Reporting your documentation factually and staying within the 4 corners of your medical report and scope of practice inclusive of understanding how your credentials allow you to report your documentation.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2021

Medical-Legal Ethical Relationships, A Documentation Relationship Between the Doctor and Lawyer, *The level of organization required in a medical-legal case that accurately reflects the bodily injuries of your patients and the time constraints in rendering an accurate report.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2021

Medical-Legal Ethical Relationships, Report Writing and Preparing for a Legal Case, *Reviewing the facts of the case inclusive of your documentation, the defense medical examiner, medical specialists and the attorney to ensure accurate and consistent reporting.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2021

Medical-Legal Ethical Relationships, Report Writing and Preparing for a Legal Case, *Creating demonstrative evidence, visuals of your patient's bodily injuries inclusive of x-rays, MRI's, CAT Scans and electrodiagnostic findings, the spinal biomechanics of herniated disc with ipsilateral findings and contralateral symptomatology.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2021

Utilization of Research in the Clinical setting, *Utilizing peer reviewed scientific literature in creating a diagnosis, prognosis and treatment plan for the chronic and acute patient. How to implement and stay current on techniques and technology in healthcare.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

Mild Traumatic Brain Injury/Traumatic Brain Injury/Concussion, *Differentially diagnosing mild traumatic brain injury vs. traumatic brain injury and the clinical and imaging protocols required to conclude an accurate diagnosis for head trauma.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

Medical-Legal-Insurance Documentation, *Accurate and compliant documentation of history and clinical findings inclusive of functional losses, loss of activities of daily living, duties under duress and permanent loss of enjoyment of life. Prognosing static vs. stable care, gaps in care both in the onset and in the middle of passive care with a focus on detailed diagnosing. The integration of chiropractic academia, the court system and the insurance reimbursers' requirements for complete documentation.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

MRI Spinal Anatomy, Protocols and Disc Pathology, Normal anatomy of axial and sagittal views utilizing T1, T2, gradient and STIR sequences of imaging. Degeneration and annular fissures of discs in both trauma and non-trauma patients and the biochemical properties of joints in age dating pathology. Disc bulges from degenerative and sequella to osseous issues, herniation pathology and protrusion, extrusion, migrated and sequestered variations. Clinical scenarios as sequella to disc and pre-existing pathologies. Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

Chiropractic as the First Option for Spine, A Literature-Based Standard, *Utilizing clinical findings in conjunction with advanced imaging and electrodiagnostic findings in managing collaborative relationships with medical specialists. Applying a literature standard to care to ensure conservative care as the first option.* PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

Chiropractic as the First Option for Spine, A Literature-Based Standard, *Managing spinal related cases based upon MRI findings of herniations, bulges, protrusion, extrusions (comminuted and fragmented) utilizing thin-sliced acquisition protocols. When to consider ordering T1, T2, Short Tau Inversion Radiant, proton density and Dixon sequencing for spinal related pathology.* PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

Chiropractic as the First Option for Spine, A Literature-Based Standard, *Creating literature-based documentation inclusive of history and a clinical examination that encompasses causality, diagnosis, prognosis and treatment plans. Ensuring the whole person impairment ratings are consistent with contemporary literature.* PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

Chiropractic as the First Option for Spine, A Literature-Based Standard, *Spinal biomechanical engineering models related to pathobiomechanics and literature-based standards in creating an accurate diagnosis, prognosis, and treatment plan. Determining impairment ratings based upon alteration of motion segment integrity utilizing motion-imaging, and creating demonstrable evidence for continued treatment plans.* PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

Interprofessional Hospital Based Spine Care, *Trends in hospital and emergent care in the healthcare delivery system inclusive of policies, hospital staffing and current care paths for mechanical spine issues.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

Triaging the Trauma and Non-Trauma Patients, *Correlating clinical findings and the patient history in determining the correct course of care in triaging the patient utilizing orthopedic and neurological evaluations in the clinical setting. Understanding the parameters for immediate referrals vs. following the continuum of care to determine the necessity for referrals.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2021

Trends in Spinal Healthcare, *Analyzing spinal healthcare trends in both utilization and necessity and understanding the marketplace and how a level of clinical excellence is reflected in a doctors' documentation and credentials. Treatment pathways in triaging spinal pathobiomechanics.* Academy of Chiropractic Post-Doctoral Division, Cleveland University – Kansas City, Long Island, NY, 2020

MRI Spine Interpretation, *An evidence-based understanding of time-related etiology of disc pathology considering the American Society of Neuroradiology's designation of protrusion, extrusion, and sequestration of spinal discs, Considering the signal intensity of discs in age-dating pathology and acquisition protocols for advanced spinal imaging.* Academy of Chiropractic Post-Doctoral Division, Cleveland University – Kansas City, Long Island, NY, 2020

Spinal Biomechanics; A Literature Perspective, *An evidenced-based model for spinal biomechanical engineering and pathobiomechanics considering the pathophysiological limits in translations, angular deviation, and rotational planes. Utilizing the Cartesian system in plotting vertebral points to demonstratively conclude an accurate diagnosis, prognosis and biomechanical treatment plan with the consideration of long-term care in the non-specific mechanical spine pain patient when necessary.* Academy of Chiropractic Post-Doctoral Division, Cleveland University – Kansas City, Long Island, NY, 2020

Case Management of Mechanical Spine Pathology, *Clinical Grand Rounds of herniated, protruded, extruded, sequestered, and bulging discs. Differentially diagnosing vascular vs.*

mechanical spinal lesions and the necessity for urgent vascular, neurological intervention, Collaborating in a team environment utilizing a neuroradiologist, electrophysiologist, and neurosurgeon with the chiropractor as the primary spine care provider. Academy of Chiropractic Post-Doctoral Division, Cleveland University – Kansas City, Long Island, NY, 2020

Pathobiomechanics and Documentation, CPT Coding Guidelines for Initial and Established Patients with particular attention paid to Patient History, Review of Systems, Social and Family History, Physical Examination, and Medical Decision making. Specific differences in coding levels and required elements for a 99202-99203-99204-99205. Academy of Chiropractic Post-Doctoral Division, Cleveland University Kansas City, Long Island, NY, 2020

Using Documentation and Ethical Relationships, Pathways to improve coordination of care, and interprofessional communication with collaborating physicians. Maintaining ethical relationships in the medical-legal community through documentation and communication of demonstrable diagnosis, prognosis and treatment plans. Academy of Chiropractic Post-Doctoral Division, Cleveland University Kansas City, Long Island, NY, 2020

Spinal Biomechanical Engineering Clinical Application, History of clinical biomechanics with an emphasis on the diagnosis and management of spine pain of mechanical/functional origin. Evidence-based symptomatic vs. asymptomatic parameters using peer-reviewed medical index literature. Computerized mensuration analysis of spinal biomechanical pathology. Comparison of demonstrable spinal biomechanical failure on imaging to clinical evaluation and physical examination. Academy of Chiropractic Post-Doctoral Division, Cleveland University Kansas City, Long Island, NY, 2020

Spinal Biomechanical Engineering Clinical Grand Rounds, Case reviews utilizing E/M, MRI, and x-ray mensuration report to conclude an accurate diagnosis, prognosis, and treatment plan. Common diagnosis requiring interprofessional collaboration with a discussion of diagnostic dilemmas and proper communication methods. Academy of Chiropractic Post-Doctoral Division, Cleveland University Kansas City, Long Island, NY, 2020

Stroke Anatomy and Physiology: Brain Vascular Anatomy, The anatomy and physiology of the brain and how blood perfusion effects brain function. A detailed analysis of the blood supply to the brain and the physiology of ischemia. Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Stroke Anatomy and Physiology: Stroke Types and Blood Flow, Various types of stroke identifying ischemia, hypoperfusion, infarct and penumbra zones and emboli. Cardiac etiologies and clinical features as precursor to stroke with associated paradoxical emboli and thrombotic etiologies. Historical and co-morbidities that have etiology instroke inclusive of diabetes, coagulopathy, acquired and hereditary deficiencies. Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Stroke Principles of Treatment an Overview for the Primary Care Provider, *Stroke type and treatments performed by vascular specialists. The goals of treatment with the physiology of the infarct and penumbra zones and the role of immediate triage in the primary care setting. Detailing the complications of stroke and future care in the chiropractic, primary care or manual medicine clinical setting.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Clinical Evaluation and Protocols for Identifying Stroke Risk, The neurological history and examination for identifying stroke risks with a focus on supra and infratentorial regions, upper and lower motor lesions, cranial nerve signs, spinal cord pathology, motor and sensory pathology and gait abnormalities. Examining genetic and family histories along with dissection risk factors. Stroke orthopedic testing and clinical guidelines pertaining to triage for the primary care provider. Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Electrodiagnostics: Electromyogram/Nerve Conduction Velocity (EMG/NCV), Diagnosis & Interpretation: *Anatomy and Physiology of Electrodiagnostics: An in-depth review of basic neuro-anatomy and physiology dermatomes and myotomes to both the upper and lower extremities and the neurophysiology of axons and dendrites along with the myelin and function of saltatory for conduction. The sodium and potassium pump's function in action potentials.* Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island NY, 2020

Electrodiagnostics: Electromyogram/Nerve Conduction Velocity (EMG/NCV), Diagnosis & Interpretation: *Nerve Conduction Velocity (NCV) Part 1: Nerve conduction velocity testing, the equipment required and the specifics of motor and sensory testing. This section covers the motor and sensory NCV procedures and interpretation including latency, amplitude (CMAP) physiology and interpretation including the understanding of the various nuances of the wave forms.* Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island NY, 2020

Electrodiagnostics: Electromyogram/Nerve Conduction Velocity (EMG/NCV), Diagnosis & Interpretation: *Nerve Conduction Velocity (NCV) Part 2: Compound motor action potentials (CMAP) and sensory nerve action potentials (SNAP) testing and interpretation including the analysis and diagnosis of the wave forms. It also covers compressive neuropathies of the median, ulnar and posterior tibial nerves; known as carpal tunnel, cubital tunnel and tarsal tunnel syndromes. This section offers interpretation algorithms to help understand the neurodiagnostic conclusions.* Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island NY, 2020

Electrodiagnostics: Electromyogram/Nerve Conduction Velocity (EMG/NCV), Diagnosis & Interpretation: *Needle Electromyogram (EMG) Studies: The EMG process, inclusive of how the test is performed and the steps required in planning and electromyographic study. This covers the spontaneous activity of a motor unit action potential, positive sharp waves and fibrillations. The insertional activity (both normal and abnormal), recruitment activity in a broad polyphasic*

presentation and satellite potentials. This covers the diagnosing of patterns of motor unit abnormalities including neuropathic demyelinated neuropathies along with acute myopathic neuropathies. This section also covers the ruling out of false positive and false negative results. Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island NY, 2020

Electrodiagnostics: Electromyogram/Nerve Conduction Velocity (EMG/NCV), Diagnosis & Interpretation: Overview of EMG and NCV Procedures, Results, Diagnoses and Documentation. *The clinical incorporation of electrodiagnostic studies as part of a care plan where neuropathology is suspected. It also covers how to use electrodiagnostics in a collaborative environment between the chiropractor as the primary spine care provider and the surgeon, when clinically indicated. This section covers sample cases and health conclude and accurate treatment plans based upon electro-neurodiagnostic findings when clinically indicated.* Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island NY, 2020

Impairment Rating, *The understanding and utilization of the protocols and parameters of the AMA Guide to the Evaluation of Permanent Impairment 6th Edition. Spine, neurological sequelae, migraine, sexual dysfunction, sleep and arousal disorders, station and gait disorders and consciousness are detailed for impairment rating. Herniated discs, radiculopathy, fracture, dislocation and functional loss are also detailed in relation to impairment ratings.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Spinal Trauma Pathology, Triage and Connective Tissue Injuries and Wound Repair, *Triaging the injured and differentially diagnosing both the primary and secondary complaints. Connective tissue injuries and wound repair morphology focusing on the aberrant tissue replacement and permanency prognosis potential.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York, 2020

Spinal Trauma Pathology, Ligament Anatomy and Injury Research and Spinal Kinematics, *Spinal ligamentous anatomy and research focusing on wound repair, future negative sequelae of abnormal tissue replacement and the resultant aberrant kinematics and spinal biomechanics of the spine.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York, 2020

Spinal Trauma Pathology, Spinal Biomechanics, Central Nervous System and Spinal Disc Nomenclature, *The application of spinal biomechanical engineering models in trauma and the negative sequelae it has on the central nervous system inclusive of the lateral horn, periaqueductal grey matter, thalamus and cortices involvement.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs

School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York, 2020

Spinal Trauma Pathology, Biomechanics of Traumatic Disc Bulge and Age Dating Herniated Disc Pathology, *The biomechanics of traumatic disc bulges as sequelae from trauma and the comorbidity of ligamentous pathology. Age-dating spinal disc pathology in accordance with Wolff's Law.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York, 2020

Spinal Trauma Pathology, Clinical Grand Rounds, *The review of case histories of mechanical spine pathology and biomechanical failures inclusive of case histories, clinical findings and x-ray and advanced imaging studies. Assessing comorbidities in the triage and prognosis of the injured.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York, 2020

Spinal Trauma Pathology, Research Perspectives, *The review of current literature standards in spinal trauma pathology and documentation review of biomechanical failure, ligamentous failure and age-dating disc pathology.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York, 2020

Orthopedic Testing: Principles, Clinical Application and Triage, *Integration of orthopedic testing in the clinical setting to develop a differential diagnosis. Utilizing radiographic and advanced imaging inclusive of MRI and CAT scan findings to verify tissue pathology suspected by orthopedic testing conclusions and developing a treatment plan as sequelae.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Orthopedic Testing: Cervical Spine, *Integration of cervical orthopedic testing in the clinical setting to develop a differential diagnosis. Utilizing radiographic and advanced imaging inclusive of MRI and CAT scan findings to verify tissue pathology suspected by orthopedic testing conclusions and developing a treatment plan as sequelae.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Orthopedic Testing: Cervical Spine Part 2, *Integration of cervical orthopedic testing in the clinical setting to develop a differential diagnosis. Utilizing radiographic and advanced imaging inclusive of MRI and CAT scan findings to verify tissue pathology suspected by orthopedic testing conclusions and developing a treatment plan as sequelae.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Orthopedic Testing: Lumbar Spine, *Integration of lumbar orthopedic testing in the clinical setting to develop a differential diagnosis. Utilizing radiographic and advanced imaging inclusive of MRI and CAT scan findings to verify tissue pathology suspected by orthopedic testing conclusions and developing a treatment plan as sequelae.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Orthopedic Testing: Clinical Grand Rounds, how to integrate orthopedic testing in the clinical setting utilizing both simple and complex patient scenarios. It includes potential stroke, or vertebrobasilar insufficient patients and understanding the nuances in a clinical evaluation with orthopedic testing as a critical part of the evaluation and screening process. How to integrate orthopedic testing in the clinical setting utilizing both simple and complex patient scenarios. It includes potential stroke, or vertebrobasilar insufficient patients and understanding the nuances in a clinical evaluation with orthopedic testing as a critical part of the evaluation and screening process. Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Neurology of Ligament Pathology- Normal Morphology and Tissue Damage, *Connective tissue morphology, embryology and wound repair as sequelae to trauma. Full components of strain-sprain models and permanency implications with wound repair and osseous aberration with aberrant structural integrity.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2020

Neurology of Ligament Pathology- Spinal Biomechanics and Disc Pathology, *Disc pathology as sequella to trauma; herniation, extrusion, protrusion, sequestration and how the spinal unit as one system creates homeostasis to balance the pathology.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2020

Neurology of Ligament Pathology- Neurological Innervation, *The peripheral and central innervation of the disc and spinal ligaments of the dorsal root ganglion, spinal thalamic tracts, periaqueductal gray areas innervating the Thalamus and multiple regions of the brain. The efferent neurological distribution to disparate areas of the spine to create homeostatis until tetanus ensues creating osseous changes under the effect of Wolff's Law.* Academy of Chiropractic, Post-Doctoral Division, Cleveland University-Kansas City, College of Chiropractic, Long Island, NY, 2020

Spinal Biomechanical Engineering: Cartesian System, *The Cartesian Coordinate System from the history to the application in the human body. Explanation of the x, y and z axes in both translation and rotations (thetas) and how they are applicable to human biomechanics.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Spinal Biomechanical Engineering: Cervical Pathobiomechanics, *Spinal biomechanical engineering of the cervical and upper thoracic spine. This includes the normal and pathobiomechanical movement of both the anterior and posterior motor units and normal function*

and relationship of the intrinsic musculature to those motor units. Nomenclature in reporting normal and pathobiomechanical findings of the spine. Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Spinal Biomechanical Engineering: Lumbar Pathobiomechanics, *Spinal biomechanical engineering of the lumbar spine. This includes the normal and pathobiomechanical movement of both the anterior and posterior motor units and normal function and relationship of the intrinsic musculature to those motor units. Nomenclature in reporting normal and pathobiomechanical findings of the spine.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Spinal Biomechanics in Trauma, *To utilize whiplash associated disorders in various vectors of impact and whiplash mechanisms in determining pathobiomechanics. To clinically correlate annular tears, disc herniations, fractures, ligament pathology and spinal segmental instability as sequellae to pathobiomechanics from trauma. The utilization of digital motion x-ray in diagnosing normal versus abnormal facet motion along with case studies to understand the clinical application.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Spinal Biomechanical Engineering & Organizational Analysis, *Integrating spinal biomechanics and pathobiomechanics through digitized analysis. The comparison of organized versus disorganized compensation with regional and global compensation. Correlation of the vestibular, ocular and proprioceptive neurological integration in the righting reflex as evidenced in imaging. Digital and numerical algorithm in analyzing a spine.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Spinal Biomechanical Engineering: Cervical Digital Analysis, Digitizing *and analyzing the cervical spine in neutral, flexion and extension views to diagnose pathobiomechanics. This includes alteration of motion segment integrity (AMOSI) in both angular and translational movement. Ligament instability/failure/pathology are identified all using numerical values and models. Review of case studies to analyze pathobiomechanics using a computerized/numerical algorithm.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Spinal Biomechanical Engineering: Lumbar Digital Analysis, *Digitalizing and analyzing the lumbar spine images to diagnose pathobiomechanics. This includes anterior and posterior vertebral body elements in rotational analysis with neutral, left and right lateral bending in conjunction with gate analysis. Ligament instability/failure/pathology is identified all using numerical values and models. Review of case studies for analysis of pathobiomechanics using a computerized/numerical algorithm along with corrective guidelines.* Cleveland University –

Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Spinal Biomechanical Engineering: Full Spine Digital Analysis, *Digitalizing and analyzing the full spine images to diagnose pathobiomechanics as sequellae to trauma in relation to ligamentous failure and disc and vertebral pathology as sequellae. This includes anterior and posterior vertebral body elements in rotational analysis with neutral, left and right lateral bending in conjunction with gate analysis. Ligament instability/failure/pathology is identified all using numerical values and models. Review of case studies for analysis of pathobiomechanics using a computerized/numerical algorithm along with corrective guidelines.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Traumatic Brain Injury and Concussion Overview: *This section is an in-depth overview of traumatic brain injury in concussion. It discusses that all brain injuries are traumatic and dispels the myth of a “mild traumatic brain injury.” Also, this covers triage protocols and the potential sequela of patients with traumatic brain injuries.* Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Head Trauma and Traumatic Brain Injury Part 1: *This section discusses gross traumatic brain injuries from trauma and significant bleeding with both epidural and subdural hematomas. There are numerous case studies reviewed inclusive of neurosurgical intervention and postsurgical outcomes.* Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Head Trauma and Traumatic Brain Injury Part 2: *This section continues with multiple case studies of gross traumatic brain injuries from trauma requiring neurosurgical intervention and also discusses recovery sequela based upon the significance of brain trauma. This module also concludes with concussion protocols in traumatic brain injury short of demonstrable bleeding on advanced imaging.* Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Concussion And Electroencephalogram Testing: *This this section covers concussion etiology and cognitive sequela where gross bleeding has not been identified on advanced imaging. It discusses the significance of electroencephalogram testing in determining brain function and pathology (if present). This module also covers the understanding of waveforms in electroencephalogram testing in both normal and abnormal scenarios.* Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Concussion And Electroencephalogram Testing Pathological Results: *This module covers amplitude, conduction and conduction delays as sequela to traumatic brain injury to diagnose concussion and traumatic brain injury in the absence of gross bleeding and advanced imaging. This section covers electroencephalograms and event-related potentials which measures the brain response that is a direct result of specific sensory or motor events. It is a stereotype electrophysiological response to a stimulus and provides a noninvasive means of evaluating brain function. In this module multiple case studies are discussed with ensuing triage protocols*

pending the results. Cleveland University, Kansas City, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2020

Neurodiagnostics, Imaging Protocols and Pathology of the Trauma Patient, *An in-depth understanding of the protocols in triaging and reporting the clinical findings of the trauma patient. Maintaining ethical relationships with the medical-legal community.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

Diagnostics, Risk Factors, Clinical Presentation and Triaging the Trauma Patient, *An extensive understanding of the injured with clinically coordinating the history, physical findings and when to integrate neurodiagnostics. An understanding on how to utilize emergency room records in creating an accurate diagnosis and the significance of “risk factors” in spinal injury.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

Crash Dynamics and Its Relationship to Causality, *An extensive understanding of the physics involved in the transference of energy from the bullet car to the target car. This includes G's of force, newtons, gravity, energy, skid marks, crumple zones, spring factors, event data recorder and the graphing of the movement of the vehicle before, during and after the crash. Determining the clinical correlation of forces and bodily injury.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

MRI, Bone Scan and X-Ray Protocols, Physiology and Indications for the Trauma Patient, *MRI interpretation, physiology, history and clinical indications, bone scan interpretation, physiology and clinical indications, x-ray clinical indications for the trauma patient.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

Neurodiagnostic Testing Protocols, Physiology and Indications for the Trauma Patient, *Electromyography (EMG), Nerve Conduction Velocity (NCV), Somato Sensory Evoked Potential (SSEP), Visual Evoked Potential (VEP), Brain Stem Auditory Evoked Potential (BAER) and Visual-Electronystagmosgraphy (V-ENG) interpretation, protocols and clinical indications for the trauma patient.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

Documentation and Reporting for the Trauma Victim, *Understanding the necessity for accurate documentation and diagnosis utilizing the ICD-9 and the CPT to accurately describe the injury through diagnosis. Understanding and utilizing state regulations on reimbursement issues pertaining to healthcare.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

Documenting Clinically Correlated Bodily Injury to Causality, *Understanding the necessity for accurate documentation, diagnosis and clinical correlation to the injury when reporting injuries in the medical-legal community. Documenting the kinesio-pathology, myopathology, neuropathology, and pathophysiology in both a functional and structural paradigm.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

Accident Reconstruction: Terms, Concepts and Definitions, *The forces in physics that prevail in accidents to cause bodily injury. Quantifying the force coefficients of vehicle mass and force vectors that can be translated to the occupant and subsequently cause serious injury.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

Accident Reconstruction: Causality, Bodily Injury, Negative Acceleration Forces, Crumple Zones and Critical Documentation, *Factors that cause negative acceleration to zero and the subsequent forces created for the vehicle that get translated to the occupant. Understanding critical documentation of hospitals, ambulance reports, doctors and the legal profession in reconstructing an accident.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

Accident Reconstruction: Skid Marks, Time, Distance, Velocity, Speed Formulas and Road Surfaces, *The mathematical calculations necessary utilizing time, distance, speed, coefficients of friction and acceleration in reconstructing an accident. The application of the critical documentation acquired from an accident site.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

Accident Reconstruction: Research, Causality and Bodily Injury, *Delta V issues correlated to injury and mortality, side impact crashes and severity of injuries, event data recorder reports correlated to injury, frontal impact kinematics, crash injury metrics with many variables and inquiries related to head restraints.* Cleveland University – Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

MRI History and Physics, Magnetic fields, T1 and T2 relaxations, *nuclear spins, phase encoding, spin echo, T1 and T2 contrast, magnetic properties of metals and the historical perspective of the creation of NMR and MRI.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

MRI Spinal Anatomy and Protocols, *Normal anatomy of axial and sagittal views utilizing T1, T2, 3D gradient and STIR sequences of imaging. Standardized and desired protocols in views and sequencing of MRI examination to create an accurate diagnosis in MRI.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

MRI Disc Pathology and Spinal Stenosis, *MRI interpretation of bulged, herniated, protruded, extruded, sequestered and fragmented disc pathologies in etiology and neurological sequelae in relationship to the spinal cord and spinal nerve roots.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

MRI Spinal Pathology, *MRI interpretation of bone, intradural, extradural, cord and neural sleeve lesions. Tuberculosis, drop lesions, metastasis, ependymoma, schwannoma and numerous other spinal related tumors and lesions.* Cleveland University – Kansas City, ACCME Joint

Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

MRI Methodology of Analysis, *MRI interpretation sequencing of the cervical, thoracic and lumbar spine inclusive of T1, T2, STIR and 3D gradient studies to ensure the accurate diagnosis of the region visualized.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

MRI Clinical Application, *The clinical application of the results of space occupying lesions. Disc and tumor pathologies and the clinical indications of manual and adjustive therapies in the patient with spinal nerve root and spinal cord insult as sequelae.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

MRI Protocols Clinical Necessity, MRI slices, views, T1, T2, STIR axial, stacking, FFE, FSE and sagittal images. *Clinical indication for the utilization of MRI and pathologies of disc in both trauma and non-trauma sequellae, including bulge, herniation, protrusion, extrusion and sequestration.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

MRI Interpretation of Lumbar Degeneration/Bulges, *MRI slices, views, T1, T2, STIR axial, stacking, FFE, FSE and sagittal images in the interpretation of lumbar degeneration. With the co-morbidities and complications of stenosis, pseudo-protrusions, cantilevered vertebrate, Schmorl's nodes and herniations. Central canal and cauda equina compromise interpretation with management.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

MRI Interpretation of Lumbar Herniations, *MRI slices, views, T1, T2, STIR axial, stacking, FFE, FSE and sagittal images in the interpretation of lumbar herniations. With the co-morbidities and complications of stenosis, pseudo-protrusions, cantilevered vertebrate, Schmorl's nodes and herniations. Morphology of lumbar disc pathologies of central and lateral herniations, protrusions, extrusions, sequestration, focal and broad based herniations are defined and illustrated. Central canal and cauda equina compromise interpretation with management.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

MRI Interpretation of Cervical Degeneration/Bulges, *MRI slices, views, T1, T2, STIR axial, stacking, FFE, FSE and sagittal images in the interpretation of cervical degeneration. With the co-morbidities and complications of stenosis, pseudo-protrusions, cantilevered vertebrate, Schmorl's nodes and herniations. Spinal cord and canal compromise interpretation with management.* Cleveland University – Kansas City, ACCME Joint Providership with the State

University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

MRI Interpretation of Cervical Herniations, *MRI slices, views, T1, T2, STIR Axial, FFE, FSE and sagittal images in the interpretation of lumbar herniations. With the co-morbidities and complications of stenosis, pseudo-protrusions, cantilevered vertebrate, Schmorl's nodes and herniations. morphology of lumbar disc pathologies of central and lateral herniations, protrusions, extrusions, sequestration, focal and broad based herniations are defined and illustrated. Spinal cord and canal compromise interpretation with management.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

MRI Interpretation of Degenerative Spine and Disc Disease with Overlapping Traumatic Insult to Both Spine and Disc, *MRI slices, views, T1, T2, STIR Axial, FFE, FSE and sagittal images in the interpretation of degenerative spondylolesthesis, spinal canal stenosis, Modic type 3 changes, central herniations, extrusions, compressions, nerve root compressions, advanced spurring and thecal sac involvement from an orthopedic, emergency room, chiropractic, neurological, neurosurgical, physical medicine perspective.* Cleveland University – Kansas City, ACCME Joint Providership with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2020

Documentation, MRI Necessity and Trends in Spinal Treatment Protocols, *Correlating history and a thorough clinical evaluation in determining the necessity for x-ray and MRI evaluations in the trauma and non-trauma patient. Considering whole spine patho-biomechanics in formulating treatment plans and long-term supportive care. Documentation requirements in transitioning from telemedicine to in-office care.* Academy of Chiropractic Post-Doctoral Division, PACE Approved for the Federation of Chiropractic Licensing boards, Cleveland University Kansas City, Long Island, NY, 2020

Injury Model Examination, *Formulation of a Diagnosis; assessment of capabilities and stability; calculation of impairment by attending physician – 3 body areas; development of a future treatment plan and completion of necessary documentation, certificates and report.* National Providers Accident Council, Tampa, FL, 2020

2019 Advanced Injury Seminar, Failure to Diagnose in Personal Injury, *Understanding the outcome assessment tools for motor vehicles injuries, radiology for motor vehicle injuries, spinal ligament injury in motor vehicle accident, Occupant Kinematics.* Arizona Chiropractic Association, Phoenix, AZ, 2019

Personal Injury for Busy Providers, *Documentation of Injury through history, examinations, diagnosis's, diagnostics and need for complete case management.* North Western Health Sciences, Bloomington, MN, 2019

Cardiopulmonary Resuscitation for the Health Care Provider, *Instruction in the Cardiopulmonary Resuscitation for the health professional, the legalistic and usage of office AED.* Colorado Chiropractic Association, Denver, CO, 2018

Documentation and Record Keeping, *Proper use of ICD 10 coding, Medicare - State Board standards for record keeping.* Colorado Chiropractic Association, Denver, CO, 2018

Kinesiology Taping for Performance & IASTM, *Basic gentle, Soft tissue techniques for your patient care.* Colorado Chiropractic Association, Denver, CO, 2018

Made to Move – Functional Feet, *Dynamics of gait and foot functions, orthotics use and fabrication.* Colorado Chiropractic Association, Denver, CO, 2018

Colossus Mastery Program, *Understanding of the integration of computer software relative to determination of auto crash related injury, assessing general damages for bodily injury evaluation and diagnosis.* Personal Injury Institute, Murray UT, 2017

Whiplash and Brain Injury Traumatology, *Emphasizing the biomechanics of injury mechanisms, occupant kinematics, automobile crash reconstruction methods, our most current knowledge of soft tissue, endocrinological bony, and nervous system disorders, advanced imaging techniques and the comprehensive case management of whiplash and related disorders.* Spine Research Institute of San Diego, Southern California University of Health Sciences, Whittier, CA, 2016

TMJ & 7 Types of Rib Adjusting, *Adjustive procedures of conditions related to the temporal mandibular joint and rib cage articulations.* Parker University, Dallas, TX, 2015

SELECTED MEMBERSHIPS

Academy of Chiropractic, Member, 2020 - Present

American Spinal Injury & Impairment Consultants, Member, 2017 – Present

Smart Injury Doctors, Member, 2017 – Present

American Board of Independent Medical Examiners, Member, 2017 - Present

American Institute of Personal Injury Professionals, Member, 2011 - Present

Colorado Chiropractic Association, Member, 1991 - Present

Back Safe Industrial Safety Programs, Member, 1994 - 2012

SELECTED HONORS AND AWARDS

Who's Who of American Colleges, Springfield College, Springfield MA, 1979

LACC Student Services Award, Los Angeles College of Chiropractic, Whittier, CA, May 1984

Who's Who of American Colleges, Los Angeles College of Chiropractic, Whittier, CA, May 1984

SELECTED COMMUNITY SERVICE

Denver Rush - Women's Professional Indoor Football Team - X LEAGUE - Team Physician-
Denver, CO, 2022 - Present

Metro State Football Club, Denver, CO, 2012

Guadalajara Soccer Club, Denver, CO, 2002 – Present

Titians Semi Professional Football Team, Team Physician, Denver, CO, 2005 – 2008

Pirates Semi Professional Football Team, Team Physician, Denver, CO, 2002 – 2004

Eagles Semi Professional Football Team, Team Physician, Denver, CO, 2000 – 2001

American Tae Kwon Do Association, Denver, CO, 1999 – 2001

Metropolitan Wolverines Semi Professional Football Team, Team Physician, Denver, CO, 1999

Rocky Mountain Thunder Professional Indoor Football Team, Team Physician, Denver, CO, 1999

Wheat Ridge High School Football Team, Team Physician, Wheatridge, CO, 1998

Wildcats Professional Indoor Football Team, Team Physician, Denver, CO, 1998

Concorde Career Institute Academic Advisor, Aurora, CO, 1998

Wildcats Semi Professional Football Team, Team Physician, Englewood, CO, 1996 – 1997

Colorado Amateur Soccer Association, Denver, CO, 1990 -1994

DESA Gymnastics Team, Team Physician, Littleton, CO, 1988 – 1989

K-Gym Gymnastics Team, Team Physician, Littleton, CO, 1987

Colorado Cougars Semi Professional Football Team, Team Physician, Denver, CO, 1985 – 1986