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SELECTED OCCUPATIONAL HISTORY

Extended Faculty, Parker University of Chiropractic – Dallas, Texas, 2023 - present

Clinic Director, Galla Chiropractic Group, Las Vegas, Nevada, 2018 - Present

Clinic Director, Galla Chiropractic, Encinitas, Carlsbad, Oceanside, California, 2009 - 2018

Clinic Director, Galla Chiropractic, San Jose, California, 1993 - 2008

EDUCATION, LICENSURE, CREDENTIALS & QUALIFICATIONS

Doctor of Chiropractic, Licensed in the State of Nevada, License # B01699, 2018-Present

Doctor of Chiropractic, Licensed in the State of California, License # 22338, 1993-Present

Doctorate of Chiropractic, Palmer College of Chiropractic - West, Sunnyvale, California, 1992

Internship, Palmer College of Chiropractic - West, Sunnyvale, California, 1991 - 1992

National Board of Chiropractic Examiners, Part I, 1992

National Board of Chiropractic Examiners, Part II, 1992

National Board of Chiropractic Examiners, Part III, 1992

National Board of Chiropractic Examiners, Physiotherapy, 1991

National Board of Chiropractic Examiners, Special Purposes Examination for Chiropractic (SPEC), 2018

Fellow, Spinal Biomechanics & Trauma – Cleveland University, Kansas City, State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences. 2021 - present

MRI Interpretation Review Qualified –
Cleveland University, Kansas City, 2022 - present

Credentialed in Spinal Trauma Pathology-
Academy of Chiropractic Post-Doctoral Division, 2016 - present

Credentialed in Spinal Biomechanical Engineering-
Academy of Chiropractic Post-Doctoral Division, 2016 - present

Credentialed in Accident Reconstruction-
Academy of Chiropractic Post-Doctoral Division, 2017 - present

Credentialed in MRI Spine Interpretation-
Academy of Chiropractic Post-Doctoral Division, 2017 - present

Credentialed in MRI Extremity & X-ray Interpretation-
Academy of Chiropractic Post-Doctoral Division, 2021 - present

Credentialed in Traumatic Brain Injury & Concussion-
Academy of Chiropractic Post-Doctoral Division, 2019 - present

Credentialed in Impairment Rating AMA Guides 5th & 6th Edition-
Academy of Chiropractic Post-Doctoral Division, 2017 - present

Credentialed in Evaluation & Management & Coding-
Academy of Chiropractic Post-Doctoral Division, 2019 - present

Trauma Qualified -
Academy of Chiropractic Post-Doctoral Division, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University- Kansas City, College of Chiropractic, Long Island, New York , 2018

Hospital Based Spine Care Qualified –
Co-credentialed through the ACCME (Accreditation Council for Continuing Medical Education) Joint Sponsorship with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Texas Chiropractic College and PACE Recognized by the Federation of Chiropractic Licensure Boards and the Academy of Chiropractic, Long Island, New York , 2017 - present

Primary Spine Care Qualified -
Academy of Chiropractic Post-Doctoral Division, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University- Kansas City, College of Chiropractic, Long Island, New York , 2018 - present

SELECTED POST-GRADUATE EDUCATION, CERTIFICATIONS AND DIPLOMATES

Spine Management Grand Rounds Internet Live and recorded Regularly Scheduled Series – Chiropractic Management Post C1-2 Fusion – *detailed review of upper cervical anatomy and spinal biomechanics was reviewed. Specific attention to upper cervical ligamentous attachments and histological descriptions was given. Review of clinical indicators for upper cervical spine fusion and predominant patient population was outlined. Emphasis was placed on concomitant diagnosis of structural and biomechanical sources of spine pain. Interprofessional communication pathways were reviewed. Evidence based approach to post-surgical care was presented focused on physician experience, published literature and patient response. Outline of a systemized approach to the diagnosis and management of the patient with post-surgical upper cervical fusion 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 – 04-04-2023

Spine Management Grand Rounds Internet Live and recorded Regularly Scheduled Series – Spinal Degeneration – Facet Capsule and Intervertebral Disc Relationship – *detailed review of the Pfirrmann Scale utilization in the documentation of intervertebral disc degeneration was presented. Correlation to the Fujiwara Scale of facet joint degeneration was explained and outlined. Overview of inter and intra-rater reliability of both grading systems was presented. Anisotropy of spinal ligaments was detailed and presented in relation to progressive grades of spinal degeneration with correlation to spinal injury. Review of alternation of motion segment integrity was given and correlated to both Fujiwara and Pfirrmann grading systems with specific focus on the supraspinous, interspinous and facet capsular ligaments with particular attention paid to traumatic spinal injury*. 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– 03-28-2023

Spine Management Grand Rounds Internet Live and recorded Regularly Scheduled Series – Spine Care Management – the power of TEAMS – *outline an overview of a multi modal approach to spine care with a particular focus on the negative effects of siloed care. Discussion of the impact of social, individual, and behavioral factors and their influence on spinal care plans was presented. Specific attention was paid to risk factors associated with persistent spine pain and non-response to care including psychological, nociceptive processing, specific tissue pathology and biomechanical. Discussion related to health literacy of spine pain patients was emphasized with specific action steps to educate injured patients. Review of the role of the Spine Management Physician™ in clinical practice was presented and their influence on the diagnosis and management of the spine pain patient 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, Office of Continuing Medical Education – 03-21-2023

Spine Management Grand Rounds Internet Live and recorded Regularly Scheduled Series – Chiropractic Adjustment, Brain Function and Chronic Pain – *review of the definition of pain described as a multidimensional distressing experience composed of sensory, emotional, cognitive, and social components associated with actual or perceived tissue damage was presented. Analgesic effects of the chiropractic spinal adjustment were presented in the context of pain perception and occurrence was detailed. Pain lasting more than 3 months, at least on episode per week and associated with unpleasant emotions defined as chronic was reviewed. Influences of the chiropractic spinal adjustment on peripheral nerves, regional biomechanics and the central nervous system including brain function was detailed and explained.* 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 Office of Continuing Medical Education – 03-07-2023

Spine Management Grand Rounds Internet Live and Recorded regularly Scheduled Series – Spinal Degeneration and Impact on Ligament Strength - *overview and explanation of the Pfirrmann Scale of intervertebral disc degeneration outlining Grades 1-5 as visualized on sagittal T1, T2 and STIR MRI. Fujiwara Score and its application to osteoarthritis of the facet joints as demonstrated on T1, T2 and STIR MRI was demonstrated. Presence of osteophytes, sclerosis and loss of joint space dimension was correlated to Fujiwara Scores 1-4. Emphasis was placed on Intra and Interrater reliability in using grading systems. Detailed review of the stress/strain ligament curve with emphasis put on the Toe and Failure regions and their application to Pfirrmann and Fujiwara scoring. Overview of supraspinous, interspinous, facet capsule, intertransverse, ALL and PLL ligaments was provided and discussed. Traumatic injury to spinal ligaments with specific focus on anisotropic properties of spinal ligaments in the degenerative spine was presented and 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, Office of Continuing Medical Education – 02-28-2023

Grand Rounds - Chiropractic and Pain Management – A look at the Evidence – *overview and discussion of the role of chiropractic management in the spine pain patient. Literature review of the last twenty-one years was presented with a focus on research trends. Systematic review of modulation of pain in the central nervous system post chiropractic adjustment was presented. Additional literature was reviewed demonstrating reduction in opioid prescription utilization in acute and chronic spine pain. Review of future trends such as chiropractic influence on brain metabolism was presented. Interprofessional co-management was emphasized and reviewed.* 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 – 02-21-2023

Grand Rounds – Collagen Synthesis Disorders, Vascularity, and the Chiropractic Adjustment **–** *Overall description and organization of the five main types of collagen in the human body was presented. Specific genetic defects resulting in collagen deficiency specifically manifested as Ehlers-Danlos Syndrome and Marfans Syndrome was presented. Detailed overview of Osteogenesis Imperfecta was presented and discussed. Specific details of Ehlers-Danlos Vascular Syndrome were outlined. Focus on collagen disorders was targeting vascular frailty and relative vs absolute contraindications to chiropractic care.* 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 – 02-14-2023

Grand Rounds – Causality, Bodily Injury and Persistent Functional Loss – *detailed review of the important components of causal relationship in a medical legal case including pre-existing conditions, the difference between aggravation and exacerbation, correlation of bodily injury and property damage as well as acute and chronic features on advanced imaging scans. Specific outline of different body tissue types and the mechanism of injury that produces objective traumatic evidence and functional loss was presented and reviewed. Tissue type in relation to history of litigation was presented with focus on litigation pathways related to bone and disc trauma. Outlined an overview of an organized legal report presented at maximum medical improvement was presented including medical chronology, progression of patient care, functional limitations, and statutory language.* 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 – 02-07-2023

Clinical Grand Rounds – Chiropractic Case Management – Histology of Ligament Injury and Wound Repair – *Review and outline of building blocks of ligaments and tendons was presented, specific focus on collagen, elastin, ligamentocytes/tenocytes, and proteoglycans. Outline of changes to ligament histology due to pathological mechanical stress was presented in detail. Phases of ligament repair were discussed including inflammatory, remodeling and proliferation. Ligamentous scaring was presented with specific focus on inflammatory cytokines and inability of injured ligaments to resemble pre-injury histological structure was applied.* 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 – 01-31-2023

Grand Rounds – Chiropractic Management – Differential Diagnosis Intervertebral Disc, Facet Joint, Sacroiliac Joint and Hip – *detailed necessity of creating a differential diagnosis was presented and emphasized. Review of the gold standard in imaging avascular necrosis of the hip was presented with focus on delineation between intervertebral disc, spinal facet joint, sacroiliac joint and hip was presented. Overlapping referral patterns was shown and reviewed in detail. Diagnosis and causation of avascular necrosis in the hip was presented with emphasis on non-traumatic*

etiology. Surgical vs nonsurgical management 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 – 01-24-2023

Grand Rounds – Chiropractic Management – Multiple Spine Injuries **–** *analysis of patients presenting with multiple spinal injuries post trauma was presented. Overview of ligamentous, intervertebral disc and cartilage injuries was reviewed. Discussion of clinical symptoms and correlation to objectified injury was discussed. Interprofessional collaboration with emphasis on clinical indications for the chiropractic adjustment, need for medical specialist referral, necessity of advanced imaging modalities such as MRI/CT and course of care was outlined and reviewed. Hallmark signs of ligamentous injury such as mid-line tenderness 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 – 01/17/2023

Grand Rounds – Chiropractic Management – Spinal Ligament Injury – *review and detailed presentation of the frequency of traumatic ligament injuries in the cervical spine was outlined. Imaging modalities such as dynamic plain film radiographs and MRI were discussed with emphasis on stability and presence of acute injuries. Threshold for medical specialty referral was presented within the context of conservative vs surgical management. Outline of patient presentation, physical examination findings including orthopedic and neurological findings was presented. Application of AMA Guidelines to the rating of injury severity using both the 5th and 6th edition of the Guides to the Evaluation of Permanent Impairment was reviewed.* 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 – 01-10-2023

Grand Rounds – Chiropractic Management – Lumbar Intervertebral Disc Extrusion – *analysis and review of T1, T2 and STIR MRI images with specific discussion on the presence of inflammatory fluid and migration of intervertebral disc material. Communication with spine surgeon was emphasized with particular focus on verbal reporting and clinical documentation. Interprofessional communication pitfalls were outlined and presented. Medical necessity of advanced imaging was presented with clinical correlation of orthopedic and neurological examination findings 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 – 01-03-2023

Grand Rounds – Chiropractic Management – MRI Cervical Spine – Axial Anatomy - *detailed review of anatomical structures on the axial slices of cervical spine MRI were presented. Musculature presented included sternocleidomastoid, splenius cervicis, splenius capitus, logus capitus, longus colli and semispinalis capitis in both the T1 and T2 axial sequences. Traversing vs exiting spinal nerves were contrasted and compared to cervical spine. Neurological structures such as the spinal cord, 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 alar ligaments were 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 – 12-01-2022

Clinical Grand Rounds – Chiropractic Management – 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 – November 17, 2022.

Clinical Grand Rounds – Spinal Biomechanics and Clinical Case Management - *The long-term clinical outcomes of chronic hypermobility due to ligament laxity was reviewed. Potential interventions and their expected outcomes were presented.* PACE Approved for the Federation of Chiropractic Licensing Board, 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, 11-01-2022

Testifying 4: Creating Ethical Financial Relationships - *Ethical Financial Relationships with Attorneys, Ethical financial relationship with lawyers and the documentation needed from the provider to define the relationship. Assignments, release of records, right to receive information, explaining statutes of limitations and document exchange are detailed.* Cleveland University Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, October 27, 2022

Testifying 4: Creating Ethical Financial Relationships - *Legality of Assignments, assignment of rights and benefits. What that means in a contemporary clinical practice and how to ensure you have the legal authority to bill and collect based on necessary documentation.* Cleveland University Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, October 27, 2022

Testifying 4: Creating Ethical Financial Relationships - *Ethical Medical-Legal Financial Relationships, Part 1, Detailing what an ethical relationship is for the doctor and attorney. It describes the differences in ethics for a lawyer and doctor and what constitutes a licensure violation in both practices. It also details how to ensure your documentation supports ethical relationships.* Cleveland University Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, October 27, 2022

Testifying 4: Creating Ethical Financial Relationships - *Ethical Financial Relationships, Part 2, Managing cases where lawyers are unethical and understanding the Rules of Professional Conduct mandated for lawyers nationally. It helps you creates business systems to manage these types for cases and work within the framework of the laws in each state to ensure compliance.* Cleveland University Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, October 27, 2022

Testifying 4: Creating Ethical Financial Relationships - *Documentation Required to Ensure a Reasonable Conclusion to a Case with an Attorney, The "Rules of Professional Conduct" as mandated by license for lawyers and further defines documentation required for a doctor to use with cases involving lawyers. It also details the necessary documentation needed for a doctor to provide in detailing injuries to patients in an evaluation and management encounter and a final narrative for the courts.* Cleveland University Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, October 27, 2022

Clinical Grand Rounds – Acute vs Chronic Radial Fissures – Diagnosis and Management – *outline of morphological presentations of concentric, radial and transverse fissures within the annulus fibrosus of the intervertebral disc. Consensus driven definitions were presented as outlined by recommendations of the combined task forces of the North American Spine Society, American Society of Spine Radiology, and American Society of Neuroradiology. Modified Dallas Classification of annular fissures was reviewed and outlined. Specific correlation to annular fissure type and intervertebral disc morphology was detailed. Specific correlative factors linking annular fissures with acute and chronic injury was presented and reviewed.* 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 – 10-13-2022.

Clinical Grand Rounds – Degenerative versus Acute Intervertebral Disc Pathology – *review of the scientific and validated process for evaluating degenerative disc disease in the human spine was reviewed. Detailed analysis of differentiating between acute and chronic changes was emphasized. Overview and discussion of advanced imaging as well as plain film radiographs with dynamic views was presented. Review in detail of the Pfirrmann scale and it's association with intravertebral disc degeneration was presented including all Pfirrmann grades with illustrative reference.* 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 – 09-15-2022.

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, Cleveland University Kansas City College of Chiropractic, 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, Cleveland University Kansas City College of Chiropractic, 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, Cleveland University Kansas City College of Chiropractic, 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, Cleveland University Kansas City College of Chiropractic, 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, Cleveland University Kansas City College of Chiropractic, 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, Cleveland University Kansas City College of Chiropractic, 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, Cleveland University Kansas City College of Chiropractic, 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, Cleveland University Kansas City College of Chiropractic, 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, Cleveland University Kansas City College of Chiropractic, 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, Cleveland University Kansas City College of Chiropractic, 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, Cleveland University Kansas City College of Chiropractic, 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, Cleveland University Kansas City College of Chiropractic, 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, Cleveland University Kansas City College of Chiropractic, 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, Cleveland University Kansas City College of Chiropractic, 2022.

National Spine Management West Conference 2022 - Preparing for Litigation – it starts with your documentation – *outline of updated compliant reporting of the patient encounter within E/M evaluations, daily progress notes, goal setting and interprofessional management/referral was presented. Medical legal hurdles were explained and the impact of documentation on court room presentations was demonstrated. Overview of objective evidence in the diagnosis and management of traumatically injured patients was presented.* National Spine Management Group, LLC,

Federation of Chiropractic Licensing Boards, Cleveland University Kansas City College of Chiropractic, 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, Cleveland University Kansas City College of Chiropractic, 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, Cleveland University Kansas City College of Chiropractic, 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, Cleveland University Kansas City College of Chiropractic, 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, Cleveland University Kansas City College of Chiropractic, 2022.

Grand Rounds - Chiropractic Diagnosis and management of cervical spine disc herniation was presented. *Differential diagnosis of acute disc injury vs chronic disc herniation was reviewed. Co-management with medical specialist was also reviewed. A discussion of available pain management procedures as also presented*. PACE Approved for the Federation of Chiropractic Licensing Board, 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 – July 26, 2022

Clinical Grand Rounds – Chiropractic Management of Upper Extremity Neurologic Deficits and Pre-existing Intervertebral Disc Pathology – *review of objectification of neurological deficits including loss of sensation, aberrant deep tendon reflexes, loss of strength and the presence of pathological reflexes was presented and discussed. Criteria for co-management in the presence of neurological deficits with the pain management physician and the spine surgeon was outlined. Detailed presentation on CPT coding and E/M documentation requires was discussed and reviewed. Absolute and relative contraindications to chiropractic care was demonstrated and 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 – 07-21-2022

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 PhysicianTM 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 – 07-14-2022

Grand Rounds - Chiropractic Diagnosis of ligament injury to the upper cervical region was presented. *The methods and tools to determine injury to the Occipital-Atlanto and Atlanto-Axial ligaments were presented. Correlation to mechanism of injury and medical legal reports were reviewed. The AO standards for spinal instability was presented*. PACE Approved for the Federation of Chiropractic Licensing Board, 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 – July 12, 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 – 07-07-2022

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.* 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 – 06-30-2022

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 – 06-16-2022.

Chiropractic Diagnosis and Management of Degenerative Lumbar Spondylolisthesis – *A review of the ligament, biomechanical and neurologic implications of a degenerative lumbar spondylolisthesis was presented. The methods to determine stability and co-management with medical specialists was reviewed. Identification of the biomechanical compensations associated with the structural compromise was reviewed*. PACE Approved for the Federation of Chiropractic Licensing Board, 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, 06-07-2022

Clinical Grand Rounds – Atlanto-axial Pannus with and without rheumatoid arthritis – *detailed overview of the anatomy and mechanics of the Atlanto-axial space in both diagrams and MRI studies. Overview of the clinical and laboratory diagnosis of rheumatoid arthritis and MRI as the imaging modality of choice for pannus formation in the upper cervical spine. Discussion on pannus formation being more common in non-rheumatoid arthritis patients. Overview of theories relating pannus formation to spinal instability at the C1-2 joint and identification of pannus as a common trait in the elderly.*

Spine Management Group, LLC, Federation of Chiropractic Licensing Boards – PACE, State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences – 06/02/2022.

Chiropractic Diagnosis and Management of Acute Spinal Ligament Injury – *Review of the ligament injury thresholds, methods of diagnosis utilization of STIR pulse Sequence MRI as the gold standard for evaluating the age of and pathophysiology was discussed and presented. Biomechanical assessment of hypermobility associated with ligament laxity was presented along with the specific ligament involved in the clinical picture. When and how to triage to medical specialist was reviewed. Review of the four columns of vertebral architecture was detailed*. PACE Approved for the Federation of Chiropractic Licensing Board, 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, 05-24-2022

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 – 04/21/2022.

MRI Interpretation Review Qualified, Recognized by Cleveland University-Kansas City, Chiropractic and Health Sciences with courses recognized by the ACCGME in conjunction with the State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences. Qualification language approved by the American Chiropractic College of Radiology (ACCR) and the American Chiropractic Board of Radiology (ACBR) - 2022

Clinical Grand Rounds – Chiropractic and the MS Patient – *review of prodromal symptoms relating to the typical presentation of the multiple sclerosis patient as a novel update in clinical diagnosis. Recognition of subtle symptoms was emphasized. Multiple sclerosis as the leading cause of neurological disability in young adults was outlined and the importance of early recognition and prompt intervention. Overview of prodromal symptom trends occurring years before full symptoms appear and emphasis was placed on the Doctor of Chiropractic as a frontline provider it their recognition, clinical referral pathways were discussed.* Spine Management Group, LLC, Federation of Chiropractic Licensing Boards – PACE, State University of New York at Buffalo Jacobs School of Medicine, and Biomedical Sciences – 04/14/2022.

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.* 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 – 04/07/2022.

Clinical Grand Rounds- Diagnosis and Management of Persistent Spine Pain – *overview and discussion of spinal anatomy including intervertebral discs, ligaments, spinal nerves, spinal cord, and facet capsule was presented. Emphasis was placed on differential diagnosis, physical examination and clinical correlation of injury mechanism and patient complaint. Specific outline of facet joint injury and joint effusion was demonstrated and discussed using T1, T2 and STIR weighted MRI scans of the lumbar spine with specific attention paid to the right L3 facet joint. Interprofessional communication in documentation and referral for interventional pain management consulting was presented with emphasis on facet or medial branch block injections.* 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– 03/31/2022.

Clinical Grand Rounds- Spinal Biomechanical Engineering and Sagittal Balance of the Spine – *discussion of spine care in terms of engineering principles was presented. Biomechanical parameters such as pelvic incidence, sacral slope, pelvic tilt, and sagittal balance were outlined and presented. Spinal curvature and load distribution was presented mathematically and outlined using full spine plain film radiography. Comparative anatomy between primates and humans as well as humans of different ages was presented as examples of spinal compensation. Spinal rehabilitative principles was provided in group discussion.* 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 – 03/24/2022.

Clinical Grand Rounds- Diagnosis and Management of Schwannoma – *discussion of a case pertaining to traumatically induced pathology to the spine of a 59-year-old female. Outline of pathological reflexes and detailed physical examination best practices. Review of important imaging included CT axial, CT sagittal and CT coronal views as well as T2 FSE sagittal, T2 FSE axial and STIR Sagittal MRI studies were reviewed and clinically correlated. Relevant cervical and lumbar spinal anatomy in in the sagittal, axial and*

coronal planes was detailed on MRI and CT studies. Interprofessional communication with the spine surgeon was presented and review of surgical intervention including ACDF (anterior cervical discectomy and fusion) procedure to the patient's cervical spine. 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 – 03/03/2022.

Clinical Grand Rounds- Diagnosis and Management of Vertebral Osteomyelitis – *review of the causes of vertebral osteomyelitis was presented including findings on patient subjective complaint and objective findings on physical examination. Differentiation between plain film radiographs, T1, T2, Flair and STIR weighted imaging was presented and discussed. Associated clinical findings including infections in adjacent areas including intervertebral discitis areas was presented. Causes of osteomyelitis including past surgical procedure, frequent injections, infection in an adjacent tissue, IV drug use and long-term corticosteroid use were presented. Anterior elements of the functional motor unit were outlined as the primary location of osteomyelitis. Correlation clinically to difficulties in identifying this clinical entity in its early stages was reviewed.* 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 – 02/10/2022

Clinical Grand Rounds- 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 - PACE. State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences – 02/03/2022

Clinical Grand Rounds- 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 - PACE. State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences – 01/13/2022

Clinical Grand Rounds- 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 - PACE. State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences –01/06/2022

Fellowship Spinal Biomechanics and Trauma., *There are two sections to this Fellowship, didactic and observational. The didactic section includes MRI Spine, Triage/Diagnostics/Documentation, Spinal Biomechanical Engineering, Accident Reconstruction, Head Trauma/Brain Injury/Concussion, Patient History/Intake/Examination, Triage of Trauma/Non Trauma Patient, Spinal Trauma Pathology, Orthopedic Testing and Interprofessional Hospital Based Spine Care Overview. This didactic section follows protocols established by the State University of New York at Buffalo School of Medicine and Biomedical Sciences, Department of Post-Graduate Medical Education. Course approval is provided by Cleveland University of Chiropractic and Health Sciences, Kansas City and the State University of New York at Buffalo Jacobs School of Medicine. The observational section follows the didactic section. Observational clinical rotations are attended within medical practices typically involved in the management of spine pain patients. Each rotation in this section involves review of current research manuscripts relevant to each rotation and writing reviews of the presented papers. The focus of the reviews is on common traumatic injuries and current opinions on interprofessional diagnosis and management particular to that clinical observational rotation. The following medical specialties are required in each rotation; Interventional Pain Management, MRI Technology, Neuroradiology, Orthopedic Surgery; Spine, Orthopedic Surgery; extremity, Neurosurgery; Spine/Endothelial, Emergency Department and Primary Care; in patient. A Fellowship in Spinal Biomechanics and Trauma is awarded after a grade of at least 80% on all testing and exit interview is completed. 2021*

Clinical Grand Rounds – *Chiropractic Diagnosis and Management of Non-Specific Spine Pain – outline and discussion of the mechanical origins of spine pain emphasizing common biomechanical parameters was presented. Review of chiropractic-based maintenance care in the management of patient centered spine pain was introduced. Introduction of a Spine Management Physician was presented outlining the natural history of spine pain in the human population. Interprofessional communication and case management was emphasized with focus on societal burden of mismanagement 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 – 2021.

Clinical Grand Rounds – *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 - PACE. State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences – 2021

Clinical Grand Rounds - *Chiropractic Diagnosis and Management of the Post-Surgical Patient - outline and analysis of spinal biomechanical parameters in a whole spine model of care in the post-surgical analysis of the spine pain patient. Review of the details of measuring Pelvic Incidence and discussion of history of its analysis in relation to sagittal balance and vertebral body rotation was discussed. Outline of movement from a regional model of spine care to a full spine model was presented particularly in the context of pain management strategies post-surgery. Analysis of the components of the post-surgical patient including muscle movement patterns, segmental mobility, spinal curvature and rotation in the coronal, sagittal and axial planes was presented. Interprofessional communication and co-management was emphasized.* 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 – 2021.

Clinical Grand Rounds – *Chiropractic Diagnosis and Management of the Pre-Surgical Patient – outline and analysis of spinal biomechanical parameters in a whole spine model of care. Review of the details of measuring Pelvic Incidence and discussion of history of its analysis. Outline of movement from a regional model of spine care to a full spine model was presented. Analysis of the components of the pre-surgical patient including muscle movement patterns, segmental mobility, spinal curvature and rotation in the coronal, sagittal and axial planes 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 – 2021.

Clinical Grand Rounds – *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 - PACE. State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences – 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 - PACE. State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences – 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 - PACE. State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences – 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 - PACE. State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences – 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, PACE Approved for the Federation of Chiropractic Licensing Boards, Long Island, NY, 2021

Clinical Grand Rounds – *Chiropractic Management of Lumbar Radiculopathy – review of the pathogenesis and morphological presentation of lumbar radiculopathy and radiculitis. 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 - PACE. State University of New York at Buffalo Jacobs School of Medicine and Biomedical Sciences – 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 – 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 – 2021.

MRI SPINE CLINICAL GRAND ROUNDS

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, PACE

Approved for the Federation of Chiropractic Licensing Boards, Cleveland University, Kansas City, 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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University, Kansas City, 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 1 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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University, Kansas City, 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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University, Kansas City, 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 1 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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University, Kansas City, 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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University, Kansas City, 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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University, Kansas City, 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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University, Kansas City, 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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University, Kansas City, 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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University, Kansas City, 2021

Clinical Grand Rounds – Importance of Interprofessional Healthcare Communication and Teamwork – *Discussion of the history of interprofessional healthcare and the acknowledgement by the World Health Organization was presented. Specific detail on chiropractic academia and student perception of its importance was outlined. The growth and importance of both interprofessional education and communication was stressed and reviewed. Need for a clear professional identity to facilitate interprofessional education and 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 – 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 – 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 corelated 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 – Pelvic Incidence, Chiropractic and the Spine Surgeon – *detailed analysis of the historical publication of Pelvic Incidence as an 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 – Patient Triage – *testing and physical examination workflows – evidence-based evaluation of the spine pain patient was outlined and presented. Thorough review of criteria for ordering plain film and advanced imaging was discussed and demonstrated. Clinical rationale for ordering electrodiagnostic testing and patient referral criteria overview was demonstrated. EMR and documentation workflows were discussed, and efficiency protocols were outlined and applied to evidence based physical examination procedures with and without a medical scribe. Details of reevaluations and clinical outcomes were reviewed and 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 – 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–Inter-professional Communication with the Personal Injury Attorney – *review of the outlined of the initial and re-evaluation E/M reporting in an injured patient. Discussion targeted compliant reporting and interprofessional communication with the attorney. Specific methods of ensuring compliant reporting were discussed and outlined. Statutory language, permanency determination and impairment were presented and reviewed in contact of the final narrative report. Emphasis was placed on the objectification of persistent functional loss and causal relationship in the personal injury patient. Supporting medical evidence of intervertebral disc pathology including disc herniation, disc bulge and annular tear 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 – 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.

Extremity MRI & X-Ray Interpretation

Module 1
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

Module 2
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

Module 3
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

Module 4
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

Module 5
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

Module 6
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

Module 7
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

Module 8
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

Module 9
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

Module 10

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

Module 11
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

Clinical Grand Rounds – Chiropractic Professional Liability Litigation – *Discussion of thirty years of jury verdict data was reviewed and presented. Focus was on the rationale for claims against Doctor of Chiropractic and overall decisions rendered by jury pools. Outlining the risk factors associated with overly aggressive treatment, failure to diagnose and lack of interprofessional referral when medical necessary was presented with statistics. Comparison between chiropractic management and surgical management were outlined and detailed. Detailed analysis of causality versus correlation was presented and 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 – Facet Joint Thresholds and Alteration of Motion Segment Integrity – *discussion of the predominant mode of joint loading of the cervical facet joints during whiplash injury related to retraction tension on the facet joint capsule. Review of shear forces, translation of the inferior and superior facet joint as well as injury risk due to excessive stretching of spinal ligaments was presented. Overview and discussion of mechanical trauma to ligament tissue and subsequent microstructural damage not visibly detected was outlined. Threshold for microstructural changes during retraction, reduced ligament stiffness and unrecovered strain was discussed in detail. Individual response to facet joint capsule response supported in the medical literature 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 – 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 sequalae 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.

Clinical Grand Rounds – Classification of Degenerative Cervical Degenerative Disc Disease – *review of a radiographic rating system for objective assessment of intervertebral disc degeneration in the cervical spine. The degree of degeneration was organized based on loss of disc height, formation of osteophytes and the presence of diffuse sclerosis of adjacent vertebral bodies. Specific details of assessment were outlined and presented. Comparison of plain film radiographs to cadaver specimens was demonstrated and discussed. Review of interobserver validity of the grading system between observers 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.

National Spine Conference – East Coast – 2021

Spine Management Clinical Workflows – *in-depth review and discussion of the Doctor of Chiropractic as a Spine Management Physician with specific focus on the diagnosis and management of spine pain of mechanical origin. Details were outlined in relation to triage of anatomical causes of spine pain such as fracture, tumor, infection.* National Spine Management Group, Cleveland University Kansas City, Chiropractic and Health Sciences, Federation of Chiropractic Licensing Boards, Buffalo, NY, Lehi, UT 2021.

Pain Management and the Chiropractic Adjustment – *Current peer reviewed indexed research demonstrating the chiropractic adjustment's effect on the central nervous system and pain threshold was outlined and reviewed. Anatomical review and contemporary supportive research were discussed. Details of central nervous system response to the chiropractic adjustment was reviewed and demonstrated.* National Spine Management Group, Cleveland University Kansas City, Chiropractic and Health Sciences, Federation of Chiropractic Licensing Boards, Buffalo, NY, Lehi, UT 2021.

Corrective Spinal Care and Chiropractic Case Management - *Current peer reviewed indexed research demonstrating the chiropractic adjustment's effect on the biomechanical structure of the human spine during the corrective/rehabilitative phase of care. Basic outline of biomechanical parameters in symptomatic and asymptomatic patients was reviewed with particular focus on pathobiomechanics in chiropractic practice.* National Spine Management Group, Cleveland University Kansas City, Chiropractic and Health Sciences, Federation of Chiropractic Licensing Boards, Buffalo, NY, Lehi, UT 2021.

Health Maintenance Care and Chiropractic Case Management - *Current peer reviewed indexed research demonstrating the chiropractic adjustment's effect on the maintenance of the human spine. Details of indexed research reviewing Chiropractic's role in the*

reduction of narcotic utilization and decreased absenteeism from work due to disability. Communicating Health Maintenance Care to the medical profession and the public was emphasized. National Spine Management Group, Cleveland University Kansas City, Chiropractic and Health Sciences, Federation of Chiropractic Licensing Boards, Buffalo, NY, Lehi, UT 2021.

Evidence Based Clinical Reporting – *overview of current CPT and ICD-10 coding guidelines pertaining to the evaluation and management of spine pain patients was presented. Timed codes, relevant diagnosis related to injured tissue was presented. Specific discussion of proper format of the Assessment portion of clinical documentation was presented. Review of the difference between daily progress notes and Evaluation and Management [E/M] reporting was provided.* National Spine Management Group, Cleveland University Kansas City, Chiropractic and Health Sciences, Federation of Chiropractic Licensing Boards, Buffalo, NY, Lehi, UT 2021.

Cervical Spine Clinical Workflows – *detailed review of workflows of a thorough patient history and identification of clinical red flags related to relative and absolute contraindications to chiropractic care was presented. Outline of neurological examination including pathological reflexes present during spinal cord compression, cervical stenosis and cervical myelomalacia was discussed. Normal vs abnormal measurement of range of motion objectifying spinal dysfunction was presented. Specific orthopedic testing related to specific muscle, nerve or intervertebral disc injury was discussed. Review of interprofessional triage and imaging decision tree was outlined with specific focus on the pain management physician and spinal surgeon.* National Spine Management Group, Cleveland University Kansas City, Chiropractic and Health Sciences, Federation of Chiropractic Licensing Boards, Buffalo, NY, Lehi, UT 2021.

Lumbar Spine Clinical Workflows - *detailed review of workflows of a thorough patient history and identification of clinical red flags related to relative and absolute contraindications to chiropractic care was presented. Outline of neurological examination including pathological reflexes present during cervical and lumbar stenosis was discussed. Normal vs abnormal measurement of range of motion objectifying spinal dysfunction was presented. Specific orthopedic testing related to muscle, nerve or intervertebral disc injury was discussed. Review of interprofessional triage and imaging decision tree was outlined with specific focus on the pain management physician and spinal surgeon.* National Spine Management Group, Cleveland University Kansas City, Chiropractic and Health Sciences, Federation of Chiropractic Licensing Boards, Buffalo, NY, Lehi, UT 2021.

Interprofessional Clinical Documentation for the Primary Care Physician – *contemporary techniques to best communicate chiropractic care to the Primary Care Physician was discussed and presented. Analysis of the depth and scope of communication was emphasized with direct focus on the proper documentation management system including demographic sheet, imaging reports, most recent evaluation and management reports. Discussion of appropriate timing for phone consultation was presented.* National Spine

Management Group, Cleveland University Kansas City, Chiropractic and Health Sciences, Federation of Chiropractic Licensing Boards, Buffalo, NY, Lehi, UT 2021.

Clinical Documentation for the Spine Surgeon - *contemporary techniques to best communicate chiropractic care to the spine surgeon was discussed and presented. Analysis of the depth and scope of communication was emphasized with direct focus on the proper documentation management system including demographic sheet, imaging reports, most recent evaluation and management reports. Discussion of appropriate timing for phone consultation was presented.* National Spine Management Group, Cleveland University Kansas City, Chiropractic and Health Sciences, Federation of Chiropractic Licensing Boards, Buffalo, NY, Lehi, UT 2021.

Clinical Documentation for the Pain Management Physician - *contemporary techniques to best communicate chiropractic care to the pain management physician was discussed and presented. Analysis of the depth and scope of communication was emphasized with direct focus on the proper documentation management system including demographic sheet, imaging reports, most recent evaluation and management reports. Discussion of appropriate timing for phone consultation was presented.* National Spine Management Group, Cleveland University Kansas City, Chiropractic and Health Sciences, Federation of Chiropractic Licensing Boards, Buffalo, NY, Lehi, UT 2021.

Clinical Documentation for Attorney - *contemporary techniques to best communicate chiropractic care and permanent injury to the personal injury attorney was discussed and presented. Analysis of the depth and scope of communication was emphasized with direct focus on the proper documentation management system including diagnosis, response to treatment, causality and persistent functional loss was outlined. Discussion of appropriate timing for phone consultation was presented.* National Spine Management Group, Cleveland University Kansas City, Chiropractic and Health Sciences, Federation of Chiropractic Licensing Boards, Buffalo, NY, Lehi, UT 2021.

Spinal Biomechanical Engineering – *detailed presentation of the progression of laboratory-based biomechanics into the clinical realm was outlined. Evidence based review of Pelvic Incidence and other sagittal balance parameters was presented. Regional sagittal balance and communication with the spine surgeon in the spine management practice was reviewed. Specific discussions were related to spinal sagittal balance and the non-surgical spine pain patient and correlated to the Corrective Care Phase of Chiropractic Care. Outline of the future of full spine biomechanical modeling was presented in relation to symptomatic and asymptomatic patients.* National Spine Management Group, Cleveland University Kansas City, Chiropractic and Health Sciences, Federation of Chiropractic Licensing Boards, Buffalo, NY, Lehi, UT 2021.

Objectifying the Biomechanical Spine Lesion – *review of ligament laxity and alternation of motion segment integrity was presented with specific correlation to the AMA Guides to the Evaluation of Permanent Impairment 5th and 6th Education. Correlation to bodily injury, causality and persistent functional losses in the personal injury patient and communication with the attorney was outlined. Attention was paid to the differences*

between vertebral body translation and angular motion deficits between adjacent motor units was presented. Specific details on measurement tools and analysis of the injured cervical and lumbar spines were discussed. National Spine Management Group, Cleveland University Kansas City, Chiropractic and Health Sciences, Federation of Chiropractic Licensing Boards, Buffalo, NY, Lehi, UT 2021.

Clinical Grand Rounds – Biomechanical Compensation and Intervertebral Disc Extrusion – *detailed review of MRI documented lumbar disc extrusion measuring 12mm including STIR, T1 and T2 sagittal and axial images. Presentation of radiographic biomechanical analysis outlining sagittal alignment and vertebral body rotations. Discussion of co-management of spinal pathology while considering both the biomechanical and anatomical components of spine pain. Radiographic review included lateral neutral, lateral flexion, lateral extension and AP views. Clinical correlation and discussion of pre and post-surgical care 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 – Differentiating Degenerative vs Traumatic Cervical Spondylolisthesis – *outline of spondylolisthesis clinical work up in the presence of spine pain including plain film dynamic radiographs, regional MRI study and assessment of alteration of motion segment integrity of specific spinal segments. Review of the correlation of present segmental degenerative changes such as loss of disc height, osteophyte formation, ligament ossification and facet joint hypertrophy and its association to pre-existing spondylosis was presented. Detailed discussion of past and present medical history including past traumatic events 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 – Diagnosing Mechanical Spine Pain – *review of specific cervical anatomy in the spine pain patient. Clinical correlation between plain film radiographs and MRI studies was reviewed including radiographic motion studies. Computerized Mensuration Analysis was outlined and discussed with findings correlating with normative translation and angular motion data. Review of the AMA Guides to the Evaluation of Permanent Impairment 5th and 6th Editions 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.

CV Entries

Fellowship – Spinal Biomechanics and Trauma

Academy of Chiropractic/ State University of New York at Buffalo, Jacobs School of Medicine and Biomedical Sciences /
Cleveland Chiropractic College

PAIN MANAGEMENT ROTATION

Specialty Research in Pain Management – Clinical and Procedural – Growth of Interventional Pain Management Techniques and Current Trends in Pharmacological Management of Neuropathic Pain. *ESI comparison to gabapentin in lumbosacral radicular pain – current trends and future progress of pain management interventions. Mode of action, required dosage, advantages and side effects profiles of currently available pharmacological approaches*. ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020.

Specialty Research in Pain Management – Clinical and Procedural – Therapeutic Effects of Spinal Injection Therapy - *Facet, medial branch blocks, prolotherapy and epidural interventions utilization within the Medicare population, effectiveness on lumbar central canal stenosis with and without steroids and effect on prevention of spinal surgery, herniated disc, fibromyalgia and chronic musculoskeletal pain.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020.

Specialty Research in Pain Management – Clinical and Procedural – Adverse Events Associated with Injection Therapy – *transforaminal and interlaminar epidural steroid injections, anesthesia technical considerations, effects on cervical radiculopathy midline versus paramedian approaches and perineurial injection of autologous conditioned serum. Review of FDA risk assessment.*
Academy of Chiropractic, Recognized by the PACE Program of the Federation of Chiropractic Licensing Boards, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020.

Specialty Research in Pain Management – Clinical and Procedural – Correlation of MRI Findings and Injection Outcomes - *MODIC Changes on MRI and effectiveness of facet injection, facet joint signal change on MRI with fat suppression comparison with SPECT/CT. Discussion of Modic 1, 2 and 3 with correlation of clinical outcomes and patient selection criteria.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020.

Specialty Research in Pain Management – Clinical and Procedural – Therapeutic Effects of Botulinum Toxin and Dry-Needling in Myofascial Pain Syndrome – *cost effectiveness, patient response and triage of therapeutic interventions. Physiological review of trigger point etiology and clinical presentation of acute and chronic pain. Functional response of intervention including relief and recurrence.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020.

Specialty Research in Pain Management – Clinical and Procedural – Systematic Review Technical Considerations in Cervical Epidural Analgesia - *Chemical blockage of cervical nerve roots, review of anatomical structures and correlation with MRI imaging. Blockage effects on the respiratory, circulatory and neurological systems.*

Review of cervical epidural space (CES) borders and variants in patient population. ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2019.

Specialty Research in Pain Management – Clinical and Procedural – Trends in opioid analgesic abuse and mortality in the USA, Evaluation of Opioid Pain Management in Injured Children, assessment of opioid reporting in Veteran Affairs *– Emergency visitation in pediatric injury, pain management and adoption of best practices. Trends in use of prescription opioid medication using RADARS (Research Abuse, Diversion and Addiction Related Surveillance System), comparison between legitimate pharmacy channels and diversion and abuse. Opioid use prevalence and incidents in Veteran Affairs, new prescriptions or long-term conversion and relationship to persistent growth in opioid use.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Pain Management – Clinical and Procedural – Electrodiagnostic Testing, Transforaminal Epidural Steroid Injection, Intra-articular Facet Joint Injection, Spinal Manipulation Post-Epidural Injection– *Needle EMG, active versus chronic denervation in lumbar, cervical spinal pathologies and differential diagnosis of spinal stenosis and intervertebral disc herniation. Systematic review of facet joint injections, clinical trials and conservative therapy in lower back pain. Results of spinal manipulation post-epidural injection in the cervical spine.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Pain Management – Clinical and Procedural – Radiofrequency Ablation and outcome measures - medication, function and pain in relation to pain of spinal origin. *Medial Branch Block as prognostic tool prior to lumbar facet radiofrequency denervation. Clinical comparison disc herniation, disc bulge, cervical and lumbar radiculopathy. Diagnosis and patient triage correlation to anatomical spine structures. Long, short term risk factors and outcomes in radiofrequency ablation.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Pain Management – Clinical and Procedural – Role of Cannabinoids in Pain Management – *review of pharmacological, botanical or synthetic origins of cannabinoids. Mechanism of action in alleviation of pain including analgesic, anti-inflammatory effects, modular actions on neurotransmitters and interactions with prescribed or endogenous opioids.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

MRI PHYSICS

Specialty Research in MRI Physics – The Hardware – magnet types including permanent, resistive and superconducting magnets. *Volume RF, surface, quadrature and phase array coils and other hardware necessary for the generation of MRI imaging.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in MRI Physics – Physics of Image Generation 1 – *magnetization, excitation, relaxion, acquisition, computing and display. T1 relaxion and relaxation curves, T2 relaxation, phase and phase coherence, T2 relaxion curves.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in MRI Physics – Physics of Image Generation 2 – *gradient coils, signal coding including slice encoding gradient, phase encoding gradient, Frequency encoding gradient. Gradient specifications and slice thickness. Filling k-space, k-space symmetry and k-space filling technique.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in MRI Physics – Physics of Image Generation 3 – *pulse sequences, spine echo sequences including multi-slicing and multi-echo sequencing. T1, T2, proton density contrast and their applications. Turbo spine echo, fast advanced spine echo (HASTE) sequence and gradient echo sequence. Inversion recovery sequence including STIR and FLAIR sequence. Choosing the right sequence pros and cons, T1, T2 and PD parameters.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in MRI Physics – Physics of Image Generation – technical parameters and artifacts – *repetition time, echo time, flip angle, inversion time, number of acquisitions, matric and field of view. Slice thickness, slice gap, phase encoding direction 1 and direction 2 and relation to bandwidth. Motion artifact, para-magnetic artifact, phase wrap artifact, susceptibility artifact, clipping artifact, spine and zebra artifacts. Effects on image quality and acquisition.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

NEURORADIOLOGY

Specialty Research in Neuroradiology – radiographic evolution of a Schmorl's node – *acute Schmorl's node and progression to chronic stage comparison to serial MRI. Endplate fracture and acute presentation and correlation to clinical findings and pain patterns. Presentation in plain film radiograph and MRI images were compared and contrasted in both acute and chronic stages.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Neuroradiology – syringomyelia, fluid dynamics and spinal cord motion – *scoliosis curve patters and syrinx characteristics versus Chiari I malformation. Normal MRI appearance and motion artifacts related to cerebral spinal fluid motion related phenomena and common appearances on MRI imaging. Syrinx wall and fluid motion and correlation to cardiac cycle with comparison between systolic and diastolic presentations.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Neuroradiology – Spinal Biomechanics, Thoracolumbar Deformity and Surgical Outcomes – *full spine analysis, adjacent spinal biomechanics and its impact on surgical outcomes. Sagittal alignment pelvis to cervical spine and association with kyphosis and lordosis mechanical positioning.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Neuroradiology – MRI and EMG comparison in denervated muscle diagnosis – *lumbar spine pathology and age in relation to paraspinal muscle size and fatty infiltration. Fatty degeneration of paraspinal muscle in degenerative lumbar kyphosis and CT versus MRI digital analysis. Positive correlations with edema on MRI and fibrillations, positive sharp waves, denervation and the level of reduced recruitment pattern.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Neuroradiology – association between annular tear and disc degeneration – *high intensity zone (HIZ) in lumbar disc and association to annular fissure on MRI. Identification of duel HIZ and its relationship to acute inflammation and calcified tissue and its association with discogenic pain patterns. Influence of phenotype, population size and inclusion sequence. T1, T2 and STIR imaging comparison and correlation.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Neuroradiology – degenerative cervical myelopathy – *paraspinal muscle morphology, clinical symptoms and functional status. Review of fatty infiltration, asymmetry findings and correlation with clinical symptoms and functional scores. Review of complex anatomical arrangement of superficial and deep muscle layers in the cervical spine, correlation to MRI findings.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Neuroradiology – MRI Neurography, Diffuse Tensor Imaging (DTI) – *diagnostic accuracy and fiber tracking in spinal cord compression. Review of spinal cord structural integrity, peripheral neuropathy and correlation to diffuse tensor imaging findings. Comparison in combining DTI with T2 and T2 alone and its value in magnetic resonance neurography.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Neuroradiology – Nomenclature and Classification of Lumbar Disc Pathology – *modified Pfirrmann grading system and lumbar disc degeneration. Consensus driven description of intervertebral disc nomenclature including intervertebral disc bulge, herniation, protrusion, broad based disc herniation, extrusion and sequestration.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Neuroradiology – MRI evaluation of intradural tumor – *neuroimaging of spinal tumors and correlation to histological study. Determining method of choice for evaluation, review of numerous types of intradural-extramedullary masses including meningioma and schwannoma. Signal intensities, contrast enhancement patterns, presence of cysts and other key differentiation findings of spinal cord tumors.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Neuroradiology – Spinal Cord Compression, Myelomalacia, MRI Imaging and Clinical Correlation – *positional cervical spinal cord compression and fibromyalgia. T1 and T2 weighted images, comparison of hypo and hyperintense signals and extent of intramedullary changes on MRI. Review of MRI findings associated with myelomalacia and discussion of correlation with clinical findings.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Neuroradiology – MRI Characteristics of Lumbar Facet Synovial Cyst – *formation characteristics of synovial cyst, relation to degenerative changes in spinal facet joints as demonstrated on MRI. Pre and post-surgical procedural MRI were reviewed and compared. Surgical management and subsequent resection were demonstrated*. ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Neuroradiology – Variability in MRI Diagnostic Error Rates – *in depth review of quality of MRI imaging and comparison to consistent MRI diagnosis between facilities. Errors of interpretation in the study examinations were considered and presented. Impact of radiological diagnosis, location of MRI study and reading radiologist and impact on treatment choice and clinical outcomes.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

ORTHOPEDIC SURGERY – EXTREMITY

Specialty Research in Orthopedic Extremity Surgery – Wrist Anatomy and Osseous Kinematics – *normal kinematics using biplanar radiographic model were reviewed. Discussion of extensive database of carpal bone anatomy and kinematics from a large*

number of healthy subjects. 3-D motion of each bone was calculated for each wrist position and discussed. Database constructed including high-resolution surface models, measures of bone volume and shape, and the 3-D kinematics of each segmented bone. ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Extremity Surgery – **Normal Motion of the Shoulder and Glenohumeral Instability** – *normal motion of the shoulder joint compared with clinical implications of glenohumeral joint instability including surgical recommendations. Review and overview of the anatomy of the glenohumeral joint, emphasis on instability based on the current literature. Description of detailed anatomy and anatomical variants of the glenohumeral joint associated with anterior and posterior shoulder instability*. ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Extremity Surgery – Orthopedic Testing and Shoulder Pathology Diagnosis - *use of orthopedic special tests (OSTs) to diagnose shoulder pathology and clinical examination. Review OST clusters, examination of methodology and illustration of their use in arriving at a pathology-based diagnosis. Discussion of examination of the biceps tendon and clinical relevance. Review of SLAP lesion and shoulder impingement syndrome were reviewed.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Extremity Surgery – Electrodiagnostic Testing and Carpal Tunnel Syndrome – *Review of the most common mononeuropathy in the human body. Relationship between clinical findings, neurological examination and electrodiagnostic testing in the diagnosis of carpal tunnel syndrome. Acute and chronic symptoms including progression of the disorder were reviewed.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Extremity Surgery – Current Concepts in Elbow Disorders – *Detailed anatomy of osseus, ligamentous and muscular structure of the elbow was reviewed. Common disease of elbow disorders and their treatment was discussed. Lateral epicondylitis and medial collateral ligament injury of the elbow were outlined. Rheumatoid arthritis, posttraumatic osteoarthritis, and elderly patients with comminuted distal humeral fractures. Surgical design and technique were outlined.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Extremity Surgery – Differentiating Cervical Spine from Shoulder Pathology – *anatomical review of cervical spine and glenohumeral joint focus on similarities and differences. Cervical disorders masking shoulder pain, cervical radiculopathy, cervical spondylotic myelopathy, facet and discogenic pain patterns were outlined. Details of shoulder pathology parsonage-tuner syndrome, subscapular neuropathy and thoracic outlet were presented.* ACCME Joint

Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Extremity Surgery – MRI of the Shoulder and Shoulder Girdle – *review of MRI analysis of scapular fracture. Detailed review of scapular function rehabilitation and training on chronic pain syndromes. Reliability of magnetic resonance imaging versus arthroscopy for the diagnosis and classification of superior glenoid labrum anterior to posterior lesions.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Extremity Surgery -Cataloging Movements of the Ankle, Hip and Spine - *Review Standardization and Terminology Committee (STC) of the International Society of Biomechanics (ISB) and classification of joint kinematics. Standard for the local axis system in each articulating bone is generated and presented. Rationale for international standards among researchers was presented.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Extremity Surgery -Cataloging Movements of the Shoulder, Elbow, Wrist and Hand - *Review Standardization and Terminology Committee (STC) of the International Society of Biomechanics (ISB) and classification of joint kinematics. Standard for the local axis system in each articulating bone is generated and presented. Rationale for international standards among researchers was presented.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Extremity Surgery – MRI and Diagnosis of Shoulder Disorders – *normal and abnormal shoulder anatomy as viewed on MRI was presented. Review and presentation of MRI in the diagnosis and treatment of brachial plexus injury. Discussion of preganglionic avulsions and muscular denervation. Comparison of CT myelography to MRI myelography were outlined. Enhanced three dimensional T1 high-resolution isotropic volume excitation MR in the evaluation of shoulder pathology. Comparison with two-dimensional enhanced T1 fat saturation MRI were discussed.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Extremity Surgery – Clinical Evaluation of Upper and Lower Extremity Pathology – *review of relevant anatomy in shoulder, elbow, wrist, hip, knee and ankle was presented. Physical examination including orthopedic, neurological and range of motion testing was presented and compared with findings on MRI results.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

ORTHOPEDIC SPINE SURGERY

Specialty Research in Orthopedic Spine Surgery – Fusion Surgery and Lumbar Stenosis – *efficacy of fusion and decompression surgery in patients with lumbar spinal stenosis. Review of degenerative spondylolisthesis and patient selection criteria. Discussion of correlation of MRI, CT findings and clinical evaluation. Review of sedimentation sign on MRI and indications of prognostic factors. Surgery versus nonsurgical treatment outlined and outcomes discussed. Compensation for lumbar spinal stenosis and clinical sagittal plane deformity was presented.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Spine Surgery – Posterior Lumbar Interbody Fusion and Adjacent Segment Degeneration (ASD) – *adjacent segment degeneration as major consequence of spinal fusion. Review of occurrence and location with correlation between surgical outcomes were discussed. Discussion of age, BMI and pre-existing stenosis in cranial adjacent segment as risk factors. ASD prevalence in radiographic evidence between cranial and caudal segments were reviewed. Presentation of risk factors and pre-operative radiological features. Facet sagittalization and tropism were discussed.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Spine Surgery – Morbidity and Mortality Predictions in Spinal Surgery – *Review of the Charlson Comorbidity Index (CCI) and the American Society of Anesthesiologist (ASA) Physical Status Classification System. Review of index outcomes and relation to costs of care. Discussion of index rating and likelihood of complications. Review of classification system in cerebral spinal fluid (CSF) leaks.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Spine Surgery – Spondylolisthesis, clinical and radiographic classifications - *classification system that considers disc space height, sagittal alignment and translation, and the absence or presence of unilateral or bilateral leg pain was discussed. Detailed review of spondylolisthesis etiology, clinical presentation and imaging findings was reviewed. Review of inter and interobserver reliabilities of radiographic and clinical criteria. Review of consensus driven treatment options for degenerative spondylolisthesis presented. Transforaminal Lumbar Interbody Fusion (TLIF) in degenerative disc disease with associated spondylolisthesis grade I was reviewed and correlated.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Spine Surgery – Sagittal Alignment and Spinal Surgery, Clinical Outcomes and Follow up – *discussion of outcomes and sagittal alignment in single unilateral transforaminal lumbar interbody fusion (TLIF). Detailed review of surgical TLIF procedure and associated mid and long-term clinical outcomes. Discussion and presentation of influence of pelvic incidents and lumbar lordosis*

mismatch and post-operative residual symptoms. Analysis of adjacent segment disease following fusion. ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Spine Surgery – Complications and Outcomes in Adult Spinal Deformity Surgery – *review of surgical approaches and complications in correction of adult spinal deformity. Relevance of age, comorbidities, blood loss, osteoporosis and smoking were discussed. Discussion of Cobb Angle, Sagittal Vertical Axis, Pelvic Tilt, Thoracic Kyphosis were reviewed and examined in relation to transpsoas lateral interbody fusion (LIF), percutaneous pedicle screw (PPS), transforaminal lumbar interbody fusion (TLIF). Comparison between minimally invasive and traditionally open procedures was provided and reviewed. Discussion of minimally invasive surgery options were emphasized and outcomes reviewed with correlation to diagnosis and procedural coding.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Spine Surgery – Surgical Interventions in Lumbar Disc Herniation – *review of differences in surgical treatment of recurrent lumbar disc herniation. Clinical correlation between plain film radiography, MRI studies and clinical presentation were reviewed. Data on frequency in management of recurrent lumbar intervertebral disc herniations presented. Duration of symptoms and influence of patient outcomes in sciatica patients undergoing micro-discectomy and decompressions.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Spine Surgery – Length of Stay in Lumbar Spinal Surgery – *discussion on epidemiology of lumbar surgery outcomes and hospital stay. Correlation to clinical presentation and comorbidities were reviewed. Outline of decompression and instrumental fusion in the lumbar spine. Review of costs of lumbar surgery, trends in hospital stay and costs both on a cumulative and daily basis. Comparison of the nationwide inpatient sample and national surgical quality improvement program databases for lumbar spine fusion procedures was reviewed and presented.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Spine Surgery – Pre-Surgical Planning and Implant Design – *3-D printing and surgical planning discussion a variety of historical materials in the creation of patient specific implants based on unique individual anatomy. Historical trends in the creation of prosthetics with 3-D modeling software using neuroimaging data. Review of treatment complex spinal pathologies and surgical planning was discussed. Outline of current and future barriers to global implementation and commercialization was reviewed.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Spine Surgery – Spine Surgery Procedures in Medical Specialty Training – *discussion of current spine surgery training including*

fellowship programming in the United States. Accreditation Council for Graduate Medical Education (ACGME) cases logs were reviewed and discussed. Variability of procedures within programs and between medical specialty programs were outlined. Differential utilization between orthopedic and neurosurgical fellows was reviewed. ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Orthopedic Spine Surgery – Cerebral Spinal Fluid Dynamics, Central Nervous System Pathology and Intracranial Hypotension – *pathophysiology and various craniospinal disorders. Directional phase contrast MRI (4D Flow) was reviewed along with the anatomical and physiological properties of cerebral spinal fluid. Specific disorders such as Alzheimer's disease, hydrocephalus, Chiari Malformation and syringomyelia. Clinical correlation of CSF dynamics to understanding disease process was reviewed including normal and abnormal flow patterns. Recent advancements in fluid flow studies were outlined and presented. Signal intensity changes on MRI study in cervical spondylotic myelopathy was discussed and compared to normal parameters. Fluid dynamics patterns within syringomyelia and Chiari malformation was discussed and correlated to MRI findings and clinical presentations. Spinal microsurgical exploration surgery and resultant CSF leak and spontaneous intractable intracranial hypotension was reviewed and its pathoanatomical presentation outlined. Review of the natural and surgical history of Chiari malformation Type I in pediatric population and clinical correlation with MRI studies.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

NEUROSURGERY

Specialty Research in Neurosurgery – Anatomy and Physiology of the Blood Brain Barrier – *Review of consequences of alterations in homeostatic control of the neuronal environment. Discussion of blood flow alterations and altered vessel permeability as determinants in the pathophysiology of brain injury. Review present day literature on the anatomy, development and physiological mechanisms of the blood–brain barrier. The blood brain barrier's role in the maintenance of the extracellular environment. Vascular anatomy of the spinal cord was review in relation to the physiology of the neural environment.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Neurosurgery – Spinal Cord Anatomy, Physiology and Vascular Reactivity – *detailed review of the blood supply of the spinal cord, anatomy of the vascular system and physiology of blood flow. Pathophysiology of various conditions including Thoracic Aortic Occlusion and Spinal Cord Injury were discussed with specific relation to risk of neurological deficit. Severity and duration as an effect was reviewed and correlated clinically. Cerebral circulation and aging, discussion of effects on*

cognitive functioning and cerebrovascular disease in aging. ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Neurosurgery – Upper Cervical Spine Anatomy and Cerebral Spinal Fluid Flow – *MRI flow imaging and computational fluid dynamics in healthy patients with Chiari Malformations. Review of abnormal cerebral spinal fluid flow oscillations and their effects on healthy patients. Discussion of nonlaminar complex spatial and temporal variations with associated pressure waves and pressure gradients causing syringomyelia, headaches and other clinical manifestations in Chiari I malformation. Microsurgical anatomy and internal architecture of brainstem in 3D images and surgical considerations. CSF hydrodynamic changes, spinal cord injury and development of post traumatic syringomyelia (PTSM). Impact of spinal cord nerve roots and denticulate ligaments on cerebral fluid dynamics in the cervical spine was reviewed and discussed.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Neurosurgery – Compression and Degeneration in Chronic Nerve Root Entrapment – *differentiation between peripheral nerves and spinal nerve roots and effects of electrostimulation. Discussion of various stimulating or recording neurosurgical implants and success vs failure rates. Review of the nerve root compression and its relation to consequences of disc herniation and acute compression during surgery. Maximum pressure level a spinal nerve root can sustain is reviewed. Discussion of microsurgical anatomy of lumbosacral nerve rootlets, Rhizotomy and chronic spinal cord injury. Review of qualitative grading of severity of lumbar spinal stenosis on morphology of dural sac on MRI studies, review of classification systems and the consideration of impingement of neural tissue.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Neurosurgery – Anatomy of Circle of Willis, Cerebral Arteries and Stroke Etiology – *discussion of stroke by embolism, source and cause in diagnosis and long-term treatment. Review of complex nature of embolus transport and its relation to etiology. Image based hemodynamics with discrete particle dynamics in relation to the distribution of emboli across the various cerebral arteries. Detailed anatomy of Circle of Willis reviewed and discussed with particular focus on size/inertia dependent trends in embolus distribution to the brain, distribution of cardiogenic versus aortogenic emboli among anterior, middle and posterior cerebral arteries, left versus right brain preference in cardio-embolus and aortic emboli transport and source-destination relationship for embolisms affecting the brain. Detailed review of the microsurgical anatomy of the posterior cerebral artery in three dimensional images.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Neurosurgery – Stroke Therapy, Implementation and Cost-Effectiveness – *review of endovascular therapy in addition to standard care in acute ischemic vessel occlusion stroke. Comparison in National Institutes of Health Stroke Score (NIHSS) score, symptom onset, Alberta Stroke Program Early CT Score*

(ASPECTS) and occlusion location. Considerations in acute management and revascularization of tandem occlusions in acute ischemic stroke with literature review. Discussion of Transcirculation Pipeline embolization device deployment as a rescue technique. ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Neurosurgery – Surgical Approaches and Outcomes in Spine Surgery 1 – *review of historical interventions, multilevel decompression and instrumented fusion in reduction of neural compression and spinal column stabilization. Discussion of morbidity and mortality in relation to surgical procedures. The use of the modified fragility index to predict 30-day morbidity and mortality from spine surgery. Differences in patient selection for minimally invasive versus open surgical procedures, and review of post-surgical outcomes. Morbidity, mortality and health care costs for patients undergoing spine surgery following ACGME resident duty-reform.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Neurosurgery – Surgical Approaches and Outcomes in Spine Surgery 2 *Predisposing factors for dural tears in lumbar spine surgery including degenerative conditions, prior surgery and age related indicators were reviewed. Discussion and review of re-admission rages in spine surgery through metanalysis and systematic review. Bibliometric study of the most important minimally invasive (MIS) spine surgery papers including Level III and IV studies with focus on moving toward Level I and Level II.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

EMERGENCY MEDICINE

Specialty Research in Emergency Medicine – Emergency Medicine and Spine Pain – *review of lack of guidelines for the management of lower back pain in the ED. Frequency of lower back pain visitation in the emergency department including environmental/sociocultural dimensions and physical/psychospiritual dimensions were reviewed. Discussion of utilization of significant healthcare resources with complete description of lower back pain characteristics, health services use in non-urgent lower back pain patients presenting to the ED. Managing spine pain in the ED using usual and customary medical intervention. Extent of appropriate CT and MRI scans in the hospital setting, accessibility reviewed in conjunction with presented national data.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Emergency Medicine – Medication Usage and Motor Vehicle Accidents – *review of ADHD medication utilization and motor vehicle accident data and frequency of motor vehicle accident sin this specific patient population. Review of the*

prevalent and preventable cause of morbidity and mortality among patients and concepts of restricting based on prognostic factors. ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Emergency Medicine – Emergency Department Imaging Perspectives – *review of imaging protocols among a spectrum of clinical indications, perspective on aging populations and clinical complexity. Review of CT, MRI, plain film imaging and ultrasound and their relationships to internal medicine and musculoskeletal disorders examined on an emergency basis through patient generated national survey data. Details of specific contexts in which imaging has become concentrated and targeted efforts for optimization of utilization. considerations of utilization of CT in the emergency department and evaluation to increasing trends. Review of quality improvements in imaging utilization. Comparison between pediatric and adult imaging protocols and trends. Discussion and analysis of "Choose Wisely" recommendations and creating of guideline/policy/clinical pathways in New England EDs. MRI utilization in pediatric ED reviewed and analyzed.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Emergency Medicine – Cauda Equina Syndrome and Other Emergent Conditions – *traumatic injuries to the thoracolumbar spine and overall impact on emergency services. Discussion of exact definitions of Conus Medullaris Syndrome (CMS) and Cauda Equina Syndrome (CES). Diagnosis in acute phase and radiological findings clinically correlating with physical examination findings. Parameters for spinal regions of traumatic injury were presented and reviewed. Case presentations for neck and spine were included and reviewed with particular focus on differential diagnosis and case uniqueness.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Emergency Medicine – Emergency Medicine Residency Curriculum – *review of Ohio State University Emergency Medicine Residency Program Musculoskeletal Emergencies Curriculum. Outline of the significant nature of musculoskeletal emergency presentations to ED. Details in the training required to master clinical experience, self-directed learning and small group didactics. Case study reviews and discussion was presented with particular focus on infection vs non-infections and traumatic vs non-traumatic presentations in ED.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Emergency Medicine – Opioid vs Non-Opioid Medications in the Emergency Department – *discussion of limited evidence of long-term outcomes of opioids with non-opioid medication for chronic pain. Literature review on effectiveness for opioid interventions. Discussion of alternative recommendations, evidence demonstrating lack of benefit and poor long term outcomes. Variation in physician opioid prescriptions discussed. Patterns of opioid initiation at first visits for pain in the ED in the United States including frequency and dosage. Emergency Department data concerning the persistent pain after motor vehicle accidents and comparison between*

opioid and NSAID prescribed in the ED. ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Emergency Medicine – Concussion and Repeat ED visits – *review of patients presenting to ED with concussion with re-visitation within 72 hours. Mechanism of injury including closed head injury, assault, fall and motor vehicle accidents discussed. Epidemiological evidence presented regarding number of visitations, characteristics and care paths reviewed. Discussion of adoption of a more comprehensive discharge plan to further prevent repeat visits was outlined.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Emergency Medicine – CDC Epidemiology of ED Visits in the United States, Adults Over 65 and Motor Vehicle Accidents – *Evaluation of data from the National Hospital Ambulatory Medical Care Survey and frequency of ED visitation. Percentage of visits requiring hospital admission was reviewed along with patterns of need for critical care. Review of imaging ordering statistics and clinical diagnosis was discussed. Details of primary and secondary ED diagnosis presented in relation to sprain/strain, contusion and spinal pathology including herniated intervertebral disc, facture and spinal cord compression.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Emergency Medicine – National Hospital Ambulatory Medical Care Survey – *a review of the current representative data on ambulatory care visits to hospital emergency departments in the United States. Demographics, residence, insurance class, chief complaint with focus on traumatic injury, diseases of the nervous and musculoskeletal systems were outlined.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Emergency Medicine – Lower Back Pain and Emergency Room Visits – *detailed analysis of impact of lower back pain on ED globally. First systematic review of the trends in the literature including lower back pain as significant complaint and the variables in its definition. Discussion of the proper diagnosis and triage of lower back pain and its current impact on ED management was reviewed.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Emergency Medicine – Spinal Cord Injury without Radiographic Abnormality (SCIWORA) in Adults – *case reports – detailed review of Spinal Cord Injury without Radiographic Abnormality was presented. Syndrome of post traumatic myelopathy demonstrable on MRI with no evidence of osseous injury on plain film or CT scan. Reporting of incidence was included with detailed discussion of case presentations, accurate diagnoses and triage was reviewed.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Emergency Medicine – CDC Traumatic Brain Injury Data – Related Emergency Department Visits, Hospitalizations, Deaths – United States, 2007 and 2013 – *traumatic brain injury, short and long term adverse clinical outcomes, death and disability reviewed and compared based on CDC data over a 7 year period. Mechanism of causation including motor vehicle accidents, falls and assault. Public health recommendations and interpretation of data was presented.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Emergency Medicine – *CDC Data, Trends in Emergency Department Visits for Ischemic Stroke and Transient Ischemic Attack – relationship between stroke and statistical cause of death, type of stroke and prognosis related to recurrence was discussed. Specific definitions of ischemic stroke, transient ischemic attack with etiology and relationship to emergency visits were outlined and presented.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Emergency Medicine – US Emergency Department Use by Children – *pediatric utilization of emergency medicine resources, description of trends on a national basis. Detailed analysis of specific demographics including race and resident status were reported and reviewed. Discussion in allocation of resources including insurance class and coverage were reviewed. Anticipated expansion of Medicaid was considered and reviewed. Estimates of nonurgent ED visits by children were presented and discussed.* Academy of Chiropractic, State University of New York at Buffalo, Jacobs School of Medicine, 2019

PRIMARY CARE/INTERNAL MEDICINE

Specialty Research in Primary Care and Internal Medicine – Supply of Chiropractic Care and Visits to Primary Care Physicians for Neck and Back Pain – *discussion of primary care visits and lower back pain. Expenditures and contributions to disability data. Discussion of supply of chiropractic care in context of visits for lower back pain and primary care physicians. Estimated national impact of primary care visits and expenditures was outlined with a focus on chiropractic's assistance in managing lower back pain. Defining an "episode" of lower back pain and relationship to collection of epidemiological data.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Primary Care and Internal Medicine – Safety of Chiropractic Care in Lower Back Pain and Migraine Headaches – *review of adverse events associated with chiropractic care in the treatment of migraine. Outline of a prospective 3-armed, single-blinded, placebo RCT. Discussion of transient and mild events following chiropractic intervention. Randomized clinical trials and meta-analysis reviewed and*

discussed relating to the diagnosis and management of lower back pain including adverse event reporting. Risk of injury to the head, neck or trunk following an office visit for chiropractic spinal manipulation, as compared to office visit for evaluation by primary care physician.
ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020
Specialty Research in Primary Care and Internal Medicine – Chiropractic and Pain Management in Primary Care – *evaluation of the analgesic effects of spinal manipulation on both healthy and pain inflicted patients. Discussion of evidence of increased in pressure pain thresholds in musculoskeletal pain at both local and remote sites. Detailed knowledge of patient population regarding demographics and socioeconomic factors as well as disease-specific characteristics. Suggestion that lower back pain should not be seen as benign and self-limiting with focus on management. Describe the communication system surrounding the management of chronic pain from the perspectives of allopathic providers, acupuncture and chiropractor providers, and chronic musculoskeletal pain patients. Chiropractic manipulative treatment (CMT) association with lower healthcare costs among multiply-comorbid Medicare beneficiaries with an episode of chronic low back pain was reviewed.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Primary Care and Internal Medicine – Perceptions of Chiropractic Care – *demographic review of data on the perceptions of chiropractic care. Review of patient interest, trustworthiness, costs and frequency of visits was discussed. Nationally representative survey to compare characteristics and use of survey respondents with positive and negative perceptions of DCs and chiropractic care. Positive perceptions of DCs were more common than those for chiropractic care. US adults generally perceive DCs in a positive manner. Describe the preferences of older adults for low back pain co-management by MDs and DCs and identify their concerns for receiving care under such a treatment model.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Primary Care and Internal Medicine – Chiropractic and Post-Surgical Care and Care for Veterans – discussion of persistent post-surgical lower back and radicular pain response to chiropractic care. Relevant anatomy related to lower back pain and intervertebral disc injury was outlined and presented. *Discussion and development of an integrated care pathway for doctors of chiropractic, primary care providers, and mental health professionals who manage veterans with low back pain, with or without mental health comorbidity, within Department of Veterans Affairs health care facilities. Support for the inclusion of chiropractic care as a component of multidisciplinary health care for low back pain, as currently recommended in existing guidelines with a focus on US Service Members. Discussion of availability of chiropractic care to military healthcare systems, referral and interprofessional communication models.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Primary Care and Internal Medicine – Effects of Chiropractic Care Combined with Medical Care, First Contact and Provider Type *– differences in outcomes, patient satisfaction, and related healthcare costs in spinal, hip, and shoulder pain patients who initiated care with medical doctors (MDs) vs those who initiated care with doctors of chiropractic (DCs). Pain of muscuoloskeletal origin and epidemiology of reduced productivity. Comparison of data on health outcomes, patient satisfaction, and related healthcare costs in patients consulting differing first-contact care providers for musculoskeletal pain.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Primary Care and Internal Medicine – Integrating Chiropractic Care into Primary Care and Private Sector Healthcare Facilities – *suggestion of a diverse role for chiropractors within conventional health care facilities. Discussion of chiropractic's effectiveness for managing musculoskeletal disorders, particularly spine-related pain and disability. Descriptions of doctors of chiropractic who work in nongovernmental, private sector health care settings in the United States. Shared electronic health records, face-to-face informal consultations methods for interprofessional communication.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

Specialty Research in Primary Care and Internal Medicine – American College of Physicians – Guideline Recommendations – Non-Invasive and Non-Pharmacological - *American College of Physicians (ACP) developed this guideline to present the evidence and provide clinical recommendations on noninvasive treatment of low back pain. Systematically review the current evidence on non-pharmacologic therapies for acute or chronic non-radicular or radicular low back pain. Comparative benefits of non-pharmacological therapies in acute/subacute low back pain including exercise, spinal manipulation, lumbar supports, acupuncture, laser, ultrasound and traction. Discussion of first and second line therapies with reduction in opioid prescription.* ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2020

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

Documentation, MRI Necessity and Trends in Spinal Trauma 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 tele-medicine to in-office care.* Academy of Chiropractic, Cleveland University Kansas City, Chiropractic and Health Sciences, Long Island, New York, 2020

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* Cleveland University Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, New York, 2020

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* Cleveland University Kansas City, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

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 sequela to osseous issues, herniation pathology and protrusion, extrusion, migrated and sequestered variations. Clinical scenarios as sequela to disc and pre-existing pathologies. Cleveland University Kansas City,* Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2020

MRI Spine Interpretation, *Herniated, bulged, extruded, protruded, sequestered and degenerative discs. The morphology of a pathological disc vs. normal morphology and the sequences required including T1, T2 and STIR for all spinal regions. Modic 1-2-3 changes detailed and the traumatic relationship*. *Cleveland University Kansas City*, Academy of Chiropractic Post-Doctoral Division, Long Island, 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

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, 2020

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, 2020

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, 2020

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, 2020

Clinical Grand Rounds – Clinical Diagnosis and Interprofessional Management of Thoracic and Lumbar Post-Traumatic Compression Fractures – *a detailed review of physical examination and assessment of traumatic thoracic and lumbar spine fractures using plain film radiograph and CT scans with and without contrast. Detailed review of*

mechanism of injury, emergency department records and radiology reports were presented. Errors in fracture site, description and omission on plain film study by the radiologist were reviews. Analysis of potential spinal instability in the cervical spine was discussed and a detailed referral for computerized mensuration analysis was demonstrated. Academy of Chiropractic, Post-Doctoral Division, Recognized by the PACE Program of the Federation of Chiropractic Licensing Boards, Buffalo, NY, 2019

Clinical Grand Rounds- – Traumatically Induced Cervical Central Canal Stenosis, *A case review of traumatically induced acute cervical intervertebral disc extrusion with superior migration resulting in severe central canal stenosis and spinal cord impingement. A detailed review of physical examination findings, neurological evaluation, MRI images and surgical triage. Interprofessional communication both verbally and through proper evidence-based documentation.* Academy of Chiropractic, Post-Doctoral Division, Buffalo, New York, 2019

Clinical Grand Rounds – Biomechanical Pathology Secondary to Cervical Fusion, *Case review of traumatically induced cervical and lumbar spine. Prior cervical fusion C4-7 with review of plain film radiographs, MRI studies and neurological evaluation. Biomechanical assessment revealed significant compensation in lumbar spine secondary to cervical disc herniation and grade 2 ligament injury above the prior fusion. Modic 2 changes on lumbar spine MRI. Care plan, interprofessional documentation and patient centered education.* Academy of Chiropractic, Post-Doctoral Division, Buffalo, New York, 2019

Clinical Grand Rounds – Anatomical vs Mechanical Sources of Spine Pain in the Spine Pain Patient – *case study presentation outlining risk factors for increased injury susceptibility including prior surgical fusion. Comparison between MRI and plain film radiographic objective data was outlined and presented. Importance of interprofessional communication and review of prior medical records. Analysis of spinal compression fracture and surgical hardware was outlined.* MDR Consulting, Recognized by the PACE Program of the Federation of Chiropractic Licensing Boards, Buffalo, NY, 2019

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, 2019

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, 2019

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, 2019

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, 2019

Clinical Grand Rounds – T11 Spinal Fracture, *A case review of traumatically induced T11 vertebral body fracture post motor vehicle collision. A detailed review of patient history, neurologic examination, plain film radiographs and advanced imaging studies were discussed. Comparison of Modic 1 and Modic 2 changes on T1 and T2 weighted MRI were reviewed, discussed and comparted to plain film images and CT scan images. Interprofessional communication both verbally and through proper evidence-based documentation was emphasized and discussed.* Recognized by the PACE Program of the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Buffalo, New York, 2019

Clinical Grand Rounds – Traumatically Induced Biomechanical Pathology with Secondary Underlying Multi-Level Cervical Intervertebral Disc Herniation, *Case review of traumatically induced biomechanical pathology in the cervical spine in the absence of pre-existing degenerative change and ligament laxity. Review of underlying multi-level acute intervertebral disc herniation and clinical correlation to patient presentation. T1, T2 and STIR MRI review of acute intervertebral disc herniation in both sagittal and axial planes outlining correlation to radiologist report and electrodiagnostic findings.* Recognized by the PACE Program for the Federation of Chiropractic Licensing Boards, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2019

Clinical Grand Rounds – Morphological versus Etiological Description of Intervertebral Disc Pathology in the Human Spine – case *analysis outlining morphological descriptions of the human spine including desiccation, herniation, extrusion and bulge. Outline and presentation of annulus fibrosis, nucleus pulposus and pain fiber innervation of both healthy and degenerative intervertebral discs was presented. Analysis of injury causation and its relation to MRI findings was detailed.* MDR Consulting, Recognized by the PACE Program of the Federation of Chiropractic Licensing Boards, Buffalo, NY, 2019

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, 2019

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, 2019

Forensic Documentation- Reporting Direct Opinions, *Cauality, 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, 2019

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, 2019

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, 2019

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, 2019

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, 2019

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, 2019

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, 2019

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, 2019

Clinical Grand Rounds – Traumatic Disc Bulge and Associated Grade 2 Ligament Injury –, *a case review of traumatically induced cervical spine traumatic bulge of the intervertebral disc with concomitant grade 2 ligament injury was presented. Detailed anatomy and morphological presentation of normal and degenerative intervertebral disc presentation was demonstrated and reviewed. Review of morphological differences between disc bulge, disc herniation and disc protrusion was presented. Grade 1, Grade 2 and Grade 3 ligamentous sprains were reviewed and discussed. Radiographic analysis and objectification of grade 2 sprain was presented and its correlation to the AMA Guides to the Evaluation of Permanent Impairment 5th edition was reviewed. Interprofessional communication both verbally and through proper evidence-based documentation was emphasized and discussed.* Academy of Chiropractic, Post-Doctoral Division, Recognized by the PACE Program of the Federation of Chiropractic Licensing Boards,, Buffalo, NY, 2019

Clinical Grand Rounds – Clinical and Advanced Imaging Presentation of Myelomalacia - *Case review of the clinical presentation of spinal cord pathology, specifically myelomalacia. Discussion of the progressive and degenerative nature of the pathology and interprofessional triage and communication was emphasized. Pathological reflexes*

including Hoffman's sign, Tromner's sign, Inverted Supinator Sign and Plantar Response was reviewed, discussed and presented as part of a comprehensive physical examination. Comparison of plain film radiographs, CT and MRI analysis of spinal cord pathology was presented. Pre and Post-surgical biomechanical diagnosis and conservative care was outlined. MDR Consulting, Recognized by the PACE Program of the Federation of Chiropractic Licensing Boards, Buffalo, NY, 2019

Evaluation and Management, *An overview of the evaluation and management process inclusive of utilizing electronic medical records to conclude evidenced-based conclusions with the utilization of macros. The importance of adhering to an academic standard and considering co-morbidities.* Cleveland University, Kansas City, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2019

Evaluation and Management, Concluding a chief complaint, history and what needs to be considered in a physical examination. , *This covers in dept the required elements for chief complain, history of present illness, review of systems, and past, family, and/or social history. This module also covers the following components of a physical examination: observation, palpation, percussion, and auscultation.* Cleveland University, Kansas City, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2019

Evaluation and Management, Coding and Spinal Examination:, *Detailing 99202-99205 and 99212-99215 inclusive of required elements for compliant billing. It reviews the elements for an extensive review of systems, cervical and lumbar anatomy and basic testing. The course also covers the basics of vertebra-basilar circulation orthopedic assessment.* Cleveland University, Kansas City, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, New York, 2019

Evaluation and Management, Neurological Evaluation:, *Reviewing complete motor and sensory evaluation inclusive of reflex arcs with an explanation of Wexler Scales in both the upper and lower extremities. The course breaks down testing for upper and lower motor neuron lesions along with upper and lower extremity motor and sensory testing examinations.* Cleveland University, Kansas City, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2019

Evaluation and Management, Documenting Visit Encounters:, *Forensically detailing the S.O.A.P. note process for visit encounters and discussing the necessity for clinically correlating symptoms, clinical findings and diagnosis with the area(s) treated. It also details how to modify treatment plans, diagnosis, document collaborative care and introduce test findings between evaluations.* Cleveland University, Kansas City, PACE

Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2019

Evaluation and Management, Case Management and Treatment Orders: , *This module discusses how to document a clinically determined treatment plan inclusive of both manual and adjunctive therapies. It discusses how to document both short-term and long-term goals as well as referring out for collaborative care and/or diagnostic testing. It also includes how to prognose your patient and determine when MMI (Maximum Medical Improvement) has been attained.* Cleveland University, Kansas City, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2019

Clinical Grand Rounds – Traumatic Cervical Disc Herniation and Associated Sternum Fracture – , *a case review of traumatically induced multi-level cervical disc herniation with associated Grade 2 Ligament Injury rated as sub-threshold. Review of case history, physical examination findings, plain film radiographs, cervical spine MRI and bone scan. Radiographic analysis and objectification of grade 2 sprain was presented and its correlation to the AMA Guides to the Evaluation of Permanent Impairment 5th edition was reviewed. Review of the purpose, function and positive findings on bone scan was reviewed and demonstrated using patient's fractured sternum. Interprofessional communication both verbally and through proper evidence-based documentation was emphasized and discussed.* Academy of Chiropractic, Post-Doctoral Division, Recognized by the PACE Program of the Federation of Chiropractic Licensing Boards, Buffalo, NY, 2019

Documenting & Credentials in Collaborative Health Care, *History, past history, risk factors and review of systems in developing a differential diagnosis. The clinical correlation of clinical evaluation, advanced imaging and necessary electrodiagnosis in concluding and accurate diagnosis, prognosis and treatment plan and indications for collaborative care.* Academy of Chiropractic, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University, Kansas City Chiropractic and Health Sciences, Long Island, New York, 2019

Documentation, Carrier Mandates and How they Guide ER and Lawyer Referrals, *Documenting electrodiagnostics, concussion and disc pathology as reflective of clinical findings when collaborating with medical specialists in private practice and hospital settings or in the medical-legal arena. Ensuring complete documentation in the evaluation and management process for both the initial and re-evaluation processes.* Recognized by the PACE Program for the Federation of Chiropractic Licensing Boards, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2019

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, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, 2019

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, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, 2019

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, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, 2019

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, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, 2019

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, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, 2019

Clinical Grand Rounds – Compensatory Lower Back Pain Due to T2 Biomechanical Pathology, *case review of spinal biomechanical engineering study in the care plan of non-responsive lower back pain. Review of medical care plan, epidural steroid injections and past medical history. Patient centered approach to full spine assessment in non-responsive chronic lower back pain with associated primary spinal mechanical lesion identified in upper thoracic spine.* Academy of Chiropractic, Post-Doctoral Division, Recognized by the PACE Program of the Federation of Chiropractic Licensing Boards, Buffalo, NY, 2019

Clinical Grand Rounds – Differentiating Pre-existing vs Causally Related Spinal Injury using MRI, *case review of traumatic injury to the cervical spine with underlying pre-existing traumatic injuries. Physical examination, neurological and orthopedic testing was clinically correlated to mechanism of injury, plain film radiographs and MRI studies. Comparison of T1, T2 and STIR views were reviewed in relation to intervertebral disc bulge, intervertebral disc herniation, Modic 1, Modic 2 and Modic 3 changes. Comparative review of causally related versus pre-existing changes was demonstrated.* Academy of Chiropractic, Post-Doctoral Division, Recognized by the PACE Program of the Federation of Chiropractic Licensing Boards, Buffalo, NY, 2019

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, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2019

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, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2019

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, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2019

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, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2019

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, PACE Recognized by the Federation of Chiropractic Licensing Boards, Academy of Chiropractic, Post-Doctoral Division, Long Island, NY, 2019

Clinical Grand Rounds – Clinical Diagnosis of Traumatically Induced Intervertebral Disc Injury versus Pre-Existing Disc Bulge in the Cervical Spine –, *case review of pre-existing cervical spine degenerative disc disease, myomalacia and spinal cord compression with superimposed central canal stenosis due to overlying traumatically induced cervical disc herniation. Discuss of Modic 1 changes and acute injury with associated foraminal canal stenosis and acute intervertebral disc herniation. Causality related to mechanism of injury, physical examination presentation and analysis of bodily injury was presented.* Academy of Chiropractic, Post-Doctoral Division, Recognized by the PACE Program of the Federation of Chiropractic Licensing Boards, Buffalo, NY, 2019

Trends in Spinal Treatment, *Migration of spinal care for mechanical spine issues from hospitals and medical specialists to trauma qualified chiropractors based upon published outcomes. Utilizing imaging studies in spinal biomechanics, pain models and clinical outcomes to determine a conclusive diagnosis, prognosis and treatment plan for triaging in a collaborative environment.* Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Long Island, New York, 2019

Neurology of Spinal Biomechanics, *Understanding the normal of spinal biomechanics and the neurotransmitters required for homeostasis. The interconnected role of Pacinian Corpuscles, Ruffini Corpuscles, Golgi Organ Receptors, Nociceptors, Proprioreceptors and Mechancoreceptors in maintaining sagittal and axial alignment in the presence of mechanical pathology.* Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Long Island, New York, 2019

MRI Age-Dating of Herniated Discs, *The literature, academic and clinical standards to age-date herniated discs. The clinical correlation the pain patters with advanced imaging finings of bone edema, spurs based upon the Piezoelectric effect fo remodeling, high signal on T2 weighted images, Vacuum Discs and disc heights in determining the time frames of the etiology of the spinal disc pathology.* Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Long Island, New York, 2019

Creating Ethical Collaborative and Medical-Legal Relationships, *Understanding the timely triage necessities based upon clinical and imaging outcomes and the documentation required for collaborative physicians to continue care. Ensuring that the documentation is complete, reflective of services rendered and clear for third party consideration in an admissible format to considered in a medical-legal environment.* Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Long Island, New York, 2019

Central Innervation of Spinal Biomechanical Engineering, *Understanding the lateral and ventral horn's innovations of Pacinian Corpuscles, Ruffini Corpuscles, Golgi Organ Receptors, Nociceptors, Proprioreceptors and Mechancoreceptors and the pathways through the spinal thalamic tracts through the periaqueductal region, the Thalamus into the Occipital, pre-frontal, sensory and motor cortexes and the efferently back through the Thalamus to disparate regions in creating spinal homeostasis, Pacinian Corpuscles, Ruffini Corpuscles, Golgi Organ Receptors, Nociceptors, Proprioreceptors and Mechancoreceptors.* Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Long Island, New York, 2019

Identifying Spinal Pathology of MRI, *Utilizing T1, T2, STIR and Gradient studies in determining myelomalacia, intra and extra-dural tumors and systemic disease patterns affecting the spinal cord. When to use contrast post-operatively in identifying discal structures vs. adhesions on postoperative advanced imaging. MRI Interpretation of herniated, circumferential bulges, focal bulges, protruded, extruded, comminuted, sequestered and fragmented discs. When to consider a neurosurgical consultation based upon the correlation of imaging and clinical findings.* Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Long Island, New York, 2019

Computerized Mensuration of Spinal Biomechanical Pathology, *Understanding the algorithmic interpretation of spinal biomechanical pathology in a 3-D model and creating treatment plans, impairment ratings and teaching models based upon the vertebral motor unit angles. Determining sagittal and axial alignments in creating a normative baseline for treatment goals and outcomes.* Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2019

Neurosurgical-Chiropractic Collaboration on Spinal Pathology, *Utilizing x-ray, MRI and other modalities of advanced imaging in conjunction with spinal biomechanical failure and clinical evaluation to collaboratively create treatment protocols for patients in both the operative and non-operative cases. Determining the boundaries of scope of care for both the chiropractor and neurosurgeon based upon a definitive diagnosis of the mechanical vs. an anatomical lesion.* Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2019

Documentation and Ethics in Medical-Legal Relationships, *Creating ethical relationships based upon accurate documentation reflective of the casually related condition of the injured. Ensuring accepted credentials of the doctor based upon Voir Dire standards reflected in an admissible curriculum vitae. How to present demonstrative documentation in the courts reflective of the patient's pathology.* Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2019

Coding, Documentation and Compliant Coding, *Ensuring the correct codes are utilized in an evaluation and management encounter. The correct elements are utilized to support the level of E&M coded along with a self-audit program to ensure ethical billing occurs. Guidelines for history of present illness, primary complaint, review of systems, family, social and past histories are discussed and how to document the same.* Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2019

Clinical Grand Rounds – Innervation Patterns and their Clinical Application of the Spinal Meninges and the Intervertebral Discs – , *a detailed review of spinal cord anatomy both in sagittal and axial sections with particular attention being paid to the three covering layers. Analysis of the structure, function and sensory innervation of the dura mater [aka the thecal sac], arachnoid mater and pia mater. Discussion of the sensory innervation of health and degenerative intervertebral discs was presented and outlined. Causality related to mechanism of injury, physical examination presentation and analysis of bodily injury was presented.* Academy of Chiropractic, Post-Doctoral Division, Recognized by the PACE Program of the Federation of Chiropractic Licensing Boards, Buffalo, NY, 2019

Clinical Grand Rounds – Spinal Primary and Secondary Biomechanical Pathology –, *a case review of objectification of spinal biomechanical pathology utilizing a Whole Organ Model of the human spine. Discussion of adjacent region mechanical dysfunction*

and clinical diagnosis utilizing sagittal and coronal plan data. Interprofessional communication both verbally and through proper evidence-based documentation was emphasized and discussed focusing on acute versus chronic spinal injury Academy of Chiropractic, Post-Doctoral Division, Recognized by the PACE Program of the Federation of Chiropractic Licensing Boards, Buffalo, NY, 2019

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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University-Kansas City, College of Chiropractic, Long Island, New York , 2018

Bio-Neuro-Mechanical Mechanism of the Chiropractic Spinal Adjustment; Primary Spine Care 5, *The biological, neurological and mechanical mechanisms and pathways from the thrust to the lateral horn and brain connection and how the brain processes the chiropractic spinal adjustment based upon the literature. Care paths of chiropractic and physical therapy from an outcome basis.* Academy of Chiropractic Post-Doctoral Division, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University- Kansas City, College of Chiropractic, Long Island, New York , 2018

Current Literature Standards of MRI Spine Intepretation; Primary Spine Care 5, *MRI Spine Interpretation of the spine. How to triage a trauma and non-trauma with advanced imaging and document the necessity. We will also cover the basics of MRI Spine Interpretation inclusive of all types of herniations, bulges.* Academy of Chiropractic Post-Doctoral Division, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University- Kansas City, College of Chiropractic, Long Island, New York , 2018

Spine Brain Connection in Pain Pathways; Primary Spine Care 5, *MRI Spine The spine-brain connection in managing chronic pain patients. Understanding how chronic pain negatively effects brain morphology and potential pathology as sequela. The role of chiropractic in preventing the loss of gray matter and the most recent evidence as outlined in indexed peer reviewed literature over the last 10 years verifying chiropractic's role.* Academy of Chiropractic Post-Doctoral Division, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University- Kansas City, College of Chiropractic, Long Island, New York , 2018

Evidenced Based Care in a Collaborative Setting; Primary Spine Care 5, *A literature based model for collaborating with hospitals, medical primary care providers and specialists. Reviewing the documentation requirements to communicate the diagnosis, prognosis and treatment plans with medical entities and having the evidence as a basis for those recommendations.* Academy of Chiropractic Post-Doctoral Division, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University-Kansas City, College of Chiropractic, Long Island, New York , 2018

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, PACE approved of the Federation of Chiropractic Licensing Boards, Cleveland University-Kansas City, College of Chiropractic, Long Island, New York, 2018

Trauma Team Member, Academy of Chiropractic, Clevland University-Kansas City, Chiropractic Health Sciences, Long Island, New York, 2018

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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University-Kansas City, College of Chiropractic, Long Island, New York, 2018

Medical-Legal Ethical Relationships, Documentation and Direct Testimony, *Organizing your documentation and understanindg 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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University- Kansas City, College of Chiropractic, Long Island, New York, 2018

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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University- Kansas City, College of Chiropractic, Long Island, New York, 2018

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, PACE

Approved for the Federation of Chiropractic Licensing Boards, Cleveland University-Kansas City, College of Chiropractic, Long Island, New York, 2018

Medical-Legal Ethical Relationships, Documentation and Direct Testimony Part 4, *Determininig 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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University- Kansas City, College of Chiropractic, Long Island, New York, 2018

Medical-Legal Ethical Relationships, Documentation and Cross Examination Testimony, *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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University- Kansas City, College of Chiropractic, Long Island, New York, 2018

Medical-Legal Ethical Relationships, A Documentation Relationship Between the Doctor and Lawyer, *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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University-Kansas City, College of Chiropractic, Long Island, New York, 2018

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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University- Kansas City, College of Chiropractic, Long Island, New York, 2018

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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University- Kansas City, College of Chiropractic, Long Island, New York, 2018

Neurology of Ligament Pathology- Normal Morphology and Tissue Damage, *Connective tissue morphology, embryology and wound repair as sequalae 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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University- Kansas City, College of Chiropractic, Long Island, New York, 2018

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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University- Kansas City, College of Chiropractic, Long Island, New York, 2018

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, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University- Kansas City, College of Chiropractic, Long Island, New York, 2018

Triage and Management of the Trauma and Non-Trauma Patient, *Differentially diagnosing spinal issues in the trauma and non-trauma patient inclusive of spinal disc pathology utilizing x-ray, MRI, CAT Scan and clinical evaluations. Collaborative triaging protocols with neurologists, neurosurgeons, orthopedic surgeons, pain management and primary medical care providers with both mechanical and anatomical spinal pathologies.* Academy of Chiropractic Post-Doctoral Division, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University- Kansas City, College of Chiropractic, Long Island, New York, 2018

Documenting Trauma and Non-Trauma Cass and Triaging Disc Pathology, *History, past history, risk factors and review of systems in developing a differential diagnosis. The utilization of spinal MRI in concluding and accurate diagnosis, prognosis and treatment plan for disc pathology* Academy of Chiropractic, PACE Approved for the Federation of Chiropractic Licensing Boards, Cleveland University, Kansas City Chiropractic and Health Sciences, 2018

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.* Texas Chiropractic College or PACE Recognized by The Federation of Chiropractic Licensing Boards,Academy of Chiropractic Post Doctoral Division, Long Island, New York, 2018

Documentation of the Trauma and Non-Trauma Case, *Documenting primary and associated complaints, past history, allergies, medications, review of systems, previous treatment, family-social medical histories, previous tests and results, history or previous injuries and illnesses, on the job questionnaire, auto accident questionnaire, vital examination, neurological examination, orthopedic testing, test orders, prognosis and treatment plans. A detailed review of current CPT coding requirements for the proper documentation of E/M visits to properly code for billable patient services. Focused attention was paid to the performance of comprehensive patient history, physical examination, review of systems as well as determining the level of clinical decision making. Analysis of a properly organized E/M report was reviewed to demonstrate proper organization and language use.* PACE Approved for the Federation of Chiropractic Licensing Board, Academy of Chiropractic Post-Doctoral Division, Long Island, New York , 2018

Interprofessional Reporting and Case Documentation, *analysis of case flow, patient chart organization and EMR workflows to optimize the success and satisfaction of the patient encounter, feasibility of accurate and timely documentation as well as strategies to provide timely interprofessional clinical communication. Focus was provided on patient, primary care and medical specialty communication beginning at the initial visitation all the way through to the release from care. An internal compliance review to ensure complete documentation based upon the E/M level billed.* PACE Approved for the Federation of Chiropractic Licensing Board, Academy of Chiropractic Post-Doctoral Division, Long Island, New York , 2018

Connective Tissue Pathology, Spinal Biomechanics as Sequella to Trauma, MRI Spine Interpretation, Ordering Protocols & Triaging the Injured, *The latest research on the 6 ways to age-date disc herniations and bulges from trauma inclusive of disc pathology nomenclature. MRI ordering protocols, inclusive of Dixon format and fat-suppressed images. The neurology and pathology of connective tissue and the sequella of trauma at the biomechanical level leading to bio-neuro-mechanical failure. Contemporary evidenced-based building blocks for triaging and in a collaborative environment.* Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2018

Spinal Biomechanical Engineering Digitizing, *integrating automated mensuration into creating treatment plans and determining maximum medical improvement. A literature-based study of normal vs. abnormal motor until function. Determining ligamentous laxity, alteration of motion segment integrity and pathological stress units and whole person impairments based upon the literature and academic standards.* Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2018

Science of the Chiropractic Spinal Adjustment and Vertebral Subluxation, *The literature-based definitions of both the mechanisms the chiropractic adjustment and how*

it affects the central nervous system in pain pathways and systemic issues that is the arbiter for normal vs. abnormal function. The physiological mechanisms of how the chiropractic spinal adjustment affects the peripheral and central nervous systems. Subluxation degeneration/Wolff's Law will be detailed from a literature perspective combined with the mechanism of subluxation (bio-neuro-mechanical lesion). A literature perspective why chiropractic care is clinically indicated as usual and customary to effectuate demonstrable biomechanical changes in the spine. An evidenced-based perspective of why physical therapy is a poor choice for spine as a 1st referral option for any provider inclusive of the literature. Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2018

Documentation, Collaboration, and Primary Spine Care, *An academic basis for documentation that is usual and customary across professions in collaborative care. Maintaining ethical medical-legal relationships based upon Voir Dire and Duabert standards with ensuring a 4-corners inclusive report. Ensuring Primary Care Status based upon an academic standards.* Cleveland University Kansas City, Chiropractic and Health Sciences, Academy of Chiropractic Post-Doctoral Division, Long Island, NY, 2018

Chiropractic Biophysics-Whiplash Trauma, *This course provided an integrated education for the Doctor of Chiropractic in the Science and Art of chiropractic analysis and management of patients injured in motor vehicle collisions inclusive of: biomechanical, neuro-physiological and epidemiologic aspects of whiplash injuries, understanding/differentiating subtle and complex ligament injuries of the cervical spine, litigation and documentation of whiplash injuries and a review of the International Chiropractors Associations Best Practices and Whiplash Injury Guidelines, review of research literature supporting the utilization and efficacy of a variety of chiropractic examination/documentation procedures and treatment techniques across motor vehicle injury populations.* Chiropractic Biophysics, Las Vegas, Nevada, 2018

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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2017

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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2017

MRI Spinal Pathology, *MRI interpretation of bone, intradural, extradural, cord and neural sleeve lesions. Tuberculosis, drop lesions, metastasis, ependymoma, schwanoma and numerous other spinal related tumors and lesions. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2017

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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2017

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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2017

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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2017

MRI Disc Overview & Imaging Protocols, *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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2017

MRI Interpretation of Lumbar Bulges/Degenerative Disc Disease , *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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo,*

School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2017

MRI Interpretation of Lumbar Herniated Discs, *MRI slices, views, T1, T2, STIR axial, stacking, FFE, FSE and sagittal images in the interpretation of lumbar herniations. With the co-morbities 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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2017

MRI Interpretation of Cervical Bulges/Degenerative Disc Disease , *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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2017

MRI Interpretation of Cervical Herniated Discs, *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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2017

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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2017

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. Texas Chiropractic College, Academy of Chiropractic Post Doctoral Division, Long Island, NY,* 2017

Accident Reconstruction: Causality, Bodily Injury, Crumple Zones, Force & 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. Texas Chiropractic College, Academy of Chiropractic Post Doctoral Division, Long Island, NY,* 2017

Accident Reconstruction: Skid Marks, Time, Distance, Velocity & Speed Formulas, *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. Texas Chiropractic College, Academy of Chiropractic Post-Doctoral Division, Long Island, NY,* 2017

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. Texas Chiropractic College, Academy of Chiropractic Post Doctoral Division, Long Island, NY,* 2017

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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2017

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. [Texas Chiropractic College or PACE Recognized by The Federation of Chiropractic Licensing Boards], Academy of Chiropractic Post Doctoral Division, Long Island, NY,* 2017

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.* Texas Chiropractic College, 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, 2017

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.* Texas Chiropractic College, 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, 2017

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.* Texas Chiropractic College, 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, 2017

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.* Texas Chiropractic College, 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, 2017

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 Doctural Division, Texas Chiropractic college, 2017

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 Doctural Division, Texas Chiropractic college, 2017

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 Doctural Division, Texas Chiropractic college, 2017

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 Doctural Division, Texas Chiropractic college, 2017

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) Joint Sponsorship with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Texas Chiropractic College and PACE Recognized by the Federation of Chiropractic Licensure Boards and the Academy of Chiropractic, Long Island, New York , 2017

The Basics of Orthopedic Testing , *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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2016

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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2016

Orthopedic Testing: Cervical Spine 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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2016

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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2016

Othopedic 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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2016

Spinal Biomechanical Engineering: Cartesian Coordinate 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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2016

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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2016

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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2016

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 diagnoising normal versus abnormal facet motion along with case studies to understand the clinical application. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2016

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, occular and proprioceptive neurological integration in the righting reflex as evidenced in imaging. Digital and numerical algorithm in analyzing a spine. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2016

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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2016

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 rotatioal 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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY, 2016

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 rotatioal 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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, NY,* 2016

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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York,* 2016

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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York,* 2016

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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York,* 2016

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. Texas Chiropractic College, ACCME Joint*

Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York, 2016

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. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York,* 2016

Spinal Trauma Pathology, Research and Documentation Review, *The review of current literature standards in spinal trauma pathology and documentation review of biomechanical failure, ligamentous failure and age-dating disc pathology. Texas Chiropractic College, ACCME Joint Providership with the State University of New York at Buffalo, School of Medicine and Biomedical Sciences, Academy of Chiropractic Post-Doctoral Division, Buffalo, New York,* 2016

Interprofesional 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. Texas Chiropractic College, Academy of Chiropractic Post-Doctoral Division, Long Island, NY,* 2016

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 reimburser's requirements for complete documentation. Texas Chiropractic College, Academy of Chiropractic Post-Doctoral Division, Long Island, NY,* 2016

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. Texas Chiropractic College, Academy of Chiropractic, Setauket NY,* 2016

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. Texas Chiropractic College, Academy of Chiropractic, Setauket NY, 2016

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. Texas Chiropractic College, Academy of Chiropractic, Setauket NY,* 2016

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. Texas Chiropractic College, Academy of Chiropractic, Setauket NY,* 2016

Primary Spine Care - 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, Texas Chiropractic College Graduate Doctoral Program, Academy of Chiropractic Post-Doctoral Division, Long Island, NY,* 2016

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, Texas Chiropractic College Graduate Doctoral Program, Academy of Chiropractic Post-Doctoral Division, Long Island, NY,* 2016

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, Texas Chiropractic College Graduate Doctoral Program, Academy of Chiropractic Post-Doctoral Division, Long Island, NY,* 2016

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, Texas Chiropractic College Graduate Doctoral Program, Academy of Chiropractic Post-Doctoral Division, Long Island, NY,* 2016

Triaging and reporting while maintaining ethical medical-legal relationships, *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. Texas Chiropractic College, Academy of Chiropractic Post-Doctoral Division, Long Island, NY,* 2016

Physical Examination & Documentation for the Trauma Patient, *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. Texas Chiropractic College, Academy of Chiropractic Post-Doctoral Division, Long Island, NY,* 2016

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. Texas Chiropractic College, Academy of Chiropractic Post-Doctoral Division, Long Island, NY,* 2016

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. Texas Chiropractic College, Academy of Chiropractic Post-Doctoral Division, Long Island, NY,* 2016

Neurodiagnostics Testing: EMG/NCV, VEP, BAER, V-ENG and SSEP, Clinical Indications and Interpretation, *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. Texas Chiropractic College, Academy of Chiropractic Post-Doctoral Division, Long Island, NY,* 2016

Documenting and Working within Your State Laws to Ensure Compliant Paperwork and Reimbursement, *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. Texas Chiropractic College, Academy of Chiropractic Post-Doctoral Division, Long Island, NY,* 2016

Strategic Plan , *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 kinesiopathology, myopathology, neuropathology, and pathophysiology in both a functional and structural paradigm. Texas Chiropractic College, Academy of Chiropractic Post-Doctoral Division, Long Island, NY,* 2016

Qualified Medical Evaluator, *Qualified medical evaluators (QMEs) are qualified physicians who are certified by the Division of Workers' Compensation - Medical Unit to examine injured workers to evaluate disability and write medical-legal reports. The reports are used to determine an injured worker's eligibility for workers' compensation benefits. QMEs include medical doctors, doctors of osteopathy, doctors of chiropractic, dentists, optometrists, podiatrists, psychologists and acupuncturists.* Certification in Qualified Medical Evaluator, State of California Department of Industrial Relations, Industrial Medical Council, San Francisco, California, 1999

Whiplash and Brain Injury Traumatology, Advanced Topics, *Whiplash Advanced Topics. Requisite and comprehensive biomechanics knowledge for forensic experts, In-depth analysis of brain, neck, and cervical spine trauma mechanisms, and all clinical syndromes and conditions resulting from whiplash (WAD/CAD). Spinal Research Institute of San Diego, California,* 1996

Whiplash and Brain Injury Traumatology, Auto Crash Reconstruction, Advanced Diagnostics & Treatment, *Accident reconstruction principles used in low speed rear impact collisions. History taking and physical examination. Radiographic and advanced imaging, including CT, MRI, scintigraphy, PET and SPECT. Electrodiagnostic testing and their applications in whiplash. Healing of soft tissue injuries and designing a rational treatment program, including activities of daily living advice Spine Research Institute of San Diego,* 1996

Whiplash and Brain Injury Traumatology, Medlegal Issues, *Foundations for successful outcome in medicolegal cases. Preparing for depositions, arbitration and court. Use of demonstrative evidence, literature searches and bibliographic services Spine Research Institute of San Diego,* 1996

Motion Palpation Certification, *In recognition of attendance and participation in The Motion Palpation Institute's extensive post-graduate educational program and the successful testing by a Motion Palpation Faculty member Eric A. Galla has been found proficient in the diagnostic procedure of motion palpation and is hereby certified by the Motion Palpation Institute.* Motion Palpation Institute, San Mateo, California, 1990

SELECTED TEACHING/INSTRUCTING/LECTURING/CONSULTING

Lecturer, Various Health Topics, Galla Chiropractic Group, Las Vegas, NV, 2018-Present
Lecturer, Healthy Back Workshop, United States Postal Service, San Jose, California, 1996-
Lecturer, Healthy Back Workshop, Pacific Gas and Electric, San Jose, California, 1995-
Lecturer, Various Health Topics, Galla Chiropractic, San Jose and San Diego, California, 1993- Present

SELECTED PUBLICATIONS

Galla, R. (2013). Taking Control of Migraines. *Ezine Articles*,

Galla, R. (2013). How To Avoid Carpal Tunnel Surgery. *Ezine Articles*,

Galla, R. (2013). The Powerful Connection Between Chiropractic and Sports Performance. *Ezine Articles*,

Galla, R. (2012). Getting Help For Low Back Pain. *Ezine Articles*,

Galla, R. (2012). Sciatica - What You Need to Know. *Ezine Articles*,

Galla, R. (2012). Auto Injuries - How Chiropractic Care Can Help. *Ezine Articles*,

Galla, R. (2012). TMJ Syndrome - What's it All About. *Ezine Articles*,

SELECTED MEMBERSHIPS

National Spine Management Group, Member, 2020 – Present
Academy of Chiropractic, Active Trauma Team Member, 2017 - Present

Academy of Chiropractic, Member, 2016 - Present

Palmer College of Chiropractic - West Alumni, Member, 1992 - Present

California Chiropractic Association, Vice President, Santa Clara County Chapter 2005-2007, 1993 - 2007

International Chiropractic Association of California, Member, 1996 - 2000

California Society of Industrial Medicine and Surgery, Member, 1997 - 1999

SELECTED HONORS AND AWARDS

Gold Clinical Excellence Award, Academy of Chiropractic, 2021
Silver Clinical Excellence Award, Academy of Chiropractic, 2020

Bronze Clinical Excellence Award, Academy of Chiropractic, 2019

Copper Clinical Excellence Award, Academy of Chiropractic, 2018

SELECTED COMMUNITY SERVICE

Teacher Appreciation Week, San Jose, California, 2015 - 2016

Teacher Appreciation Week, San Diego, California, 2014 - 2014

Teacher Appreciation Week, Encinitas, California, 2009 - 2010