

Gavin Norton

D.C. F.S.B.T.

Spine Management
Physician

904 Allyssa Ct. Lansing, Ks 66043

785-218-5046

gavinnortonnsmsg@outlook.com

Skills & Abilities

- Extensive understanding and Passion for Pain Management and whole-body wellness.
- Comprehensive, up to date understanding of Spine Care Management
- Multidisciplinary approach focusing on evidence-based treatment.
- Exceptional bedside manor
10+ years Patient Care experience
- Effective communication using active listening and open-ended questioning to establish rapport, and explaining complex terms, medical conditions, and treatment options in plain language.

Spine Management Physician, Fellowship/ Residency trained in Pain management, Orthopedics, and Neurosurgery interventional evaluation, diagnosis, and Case Management. Extensive training in the integrated approach to treating and managing MSK complaints in both the acute and chronic presentations. "Chiropractic is great, when necessary, but nothing is more beneficial than finding the source of the pain and treating THAT."

Education

Cleveland University January 2019-April 2023

- Bachelor of Science in Human Anatomy – December 2022
- Doctor of Chiropractic– April 2023
- Parts I, II, III, IV N.B.C.E. Certified
- Physical Therapy N.B.C.E. Certified

National Spine Management Group. Lehi, Ut

- Residency in Spinal Biomechanics and Trauma – May 2024

The Johns Hopkins University School of Medicine

- Advanced Imaging: Medality Mastery Complete Spine
- Emergency Imaging of the Head, Neck, Spine, Shoulder, Knee, Hip,

Experience

Midwest Chiropractic Center August 2024 –
Present

Chiropractor

Sole chiropractor at the office location providing care and managing patient referrals. Working closely with physiatry for proper patient management and referrals for additional procedures. Providing chiropractic treatment, interpreting MRI/X-ray images, Class IV laser treatment, working directly with VA benefits and referrals. Managing business decisions for my location and assisting in day-to-day operations for clinic management.

National Spine Management Group May 2023 – August 2024

Spinal Biomechanics and Trauma Residency:

Portal of Entry and case management training for Pain Management, Neuroradiology, Ortho-Extremity, Ortho-Spine, Neurosurgery, Emergency Medicine, Family Medicine. Clinic, minimally invasive procedure, and operating room observational rotations creating fundamental understanding of physical examination, advanced imaging interpretation, diagnosis, and proper referral and treatment options for conditions of the brain, spine, and extremities. Comprehensive understanding in the identification of disc and facet pain and the use of ESI, MBB, RFA, Prolotherapy, and most importantly Physical Rehabilitation. Identifying symptoms and pathology requiring surgical consultation and managing proper referral pathways for patients.

Meylor Chiropractic and Acupuncture: (May 2023 – August 2024)

Documentation and Case management. Chiropractic and Acupuncture treatment for MSK conditions and integrated management with Pain Management, Orthopedics, and Concussion providers.

Chiropractic Intern Cleveland University July 2022-April 2023

Analyzed x-rays to locate sources of patients' difficulties and to rule out fractures and diseases as sources of problems, maintained accurate case histories of patients, Obtained and recorded patients' medical histories, evaluated functioning of neuromusculoskeletal system and spine using systems of chiropractic diagnosis, Advised patients about recommended courses of treatment.

Placement Coordinator – HCA Midwest Sept. 2017 – March 2023

Created patient transfer packets, coordinated patient transfers between facilities, Navigating EMR, coordinating care with providers to place patients from the HCA emergency rooms in the appropriate levels of care. Comprehensive EMR system comprehension. Effective communication with providers to determine salient patient comorbidities and requirements.

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SELECTED OCCUPATIONAL HISTORY

Staff Chiropractor, Midwest Chiropractic Center, Bonner Springs, Kansas August 2024– Present
Spinal Biomechanics and Trauma Resident, National Spine Management Group, 2023 – 2024

EDUCATION AND LICENSURE

Doctor of Chiropractic, licensed in the State of Kansas, License # 01-06277, 2023 – Present
Doctor of Chiropractic, Cleveland Chiropractic College, Overland Park, Ks, 2023
National Board of Chiropractic Examiners, Part I-IV, 2022
National Board of Chiropractic Examiners, Physiotherapy, 2022
Bachelors of Science, Human Biology, Cleveland Chiropractic College, Overland Park, Ks, 2023

CERTIFICATIONS, QUALIFICATIONS AND DIPLOMATES

Residency in Trauma and Spinal Biomechanics- 2024
Certified Medical Examiner - 2025

SELECTED POST-GRADUATE EDUCATION

Residency – Spinal Biomechanics and Trauma

Primary Spine Provider – Pain Management

National Spine Management Group

Recognized by Cleveland University College of Chiropractic

Approved for Continuing Medical Education [ACCME] – State University of New York at Buffalo
Jacobs School of Medicine and Biomedical Sciences

Rotations in Pain Management, MRI Physics, Neuroradiology, Extremity Orthopedics, Spine
Orthopedics, Neurosurgery, Emergency Medicine, and Primary Care/Internal Medicine. Clinical and
Procedural collaborative observations completed within each rotation for a total contact time of 240hrs
per rotation.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

Specialty Research in MRI Physics – Physics of Image Generation 1 – *magnetization, excitation, relaxation, acquisition, computing and display. T1 relaxation and relaxation curves, T2 relaxation, phase and phase coherence, T2 relaxation curves.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

Specialty Research in MRI Physics – Physics of Image Generation – technical parameters and artifacts – *repetition time, echo time, flip angle, inversion time, number of acquisitions, matrix 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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.*

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 in both acute and chronic stages. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.*

Specialty Research in Neuroradiology – Syringomyelia, fluid dynamics and spinal cord motion – *scoliosis curve patterns 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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.*

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.*

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.*

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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 dual 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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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 current literature. Description of detailed anatomy and anatomical variants of the glenohumeral joint associated with anterior and posterior shoulder instability.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

Specialty Research in Orthopedic Extremity Surgery – Current Concepts in Elbow

Disorders – *Detailed anatomy of osseous, 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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.*

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.*

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.*

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.*

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.*

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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 transposas 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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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 rates 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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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, fracture and spinal cord compression.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2024.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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 multiple comorbid Medicare beneficiaries with an episode of chronic low back pain was reviewed. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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 Doctor 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.* National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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 musculoskeletal 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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

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. National Spine Management Group, Federation of Chiropractic Licensing Boards, Cleveland University College of Chiropractic, ACCME Joint Sponsorship with the State University of New York at Buffalo, Jacobs School of Medicine, 2023.

Additional Conferences and Training:

Summit Brain and Spine Conference: Many Minds. Better Outcomes. *Med talks from Neurosurgeons, Interventional pain specialists, Mental health experts, Chiropractors, Spine management providers, Physical therapists, Orthopedic surgeons, Biomechanist, Yogi and Neuroradiologist. Emphasis on case studies and proper management of difficult cases.* Sept. 14-17, 2023, Lehi, Utah

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 the spine surgeon was emphasized with a particular focus on verbal reporting and clinical documentation. Interprofessional communication pitfalls were outlined and presented. The medical necessity of advanced imaging was present with the 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 Biomechanical Sciences- 2023.

2023 National Spine Management Conference South – Role of a Spine Management Physician

- Outline and overview of what a Spine Management Physician is, and the present day need in healthcare. Details relating to the Doctor of Chiropractic filling that role with specific discussion related to WHY physical therapy, nurse practitioners or physician assistants are unable to fill this position. Overview of a spine manager's role in the evaluation and triage of non-operative spine patients was presented. Introduction to the diagnosis of non-specific spine pain was outlined with focus on the needs of primary care, pain management and spinal surgeons. National Spine Management Group, LLC, Parker University, Alabama State Board of Chiropractic Examiners, Kentucky Board of Chiropractic, Louisiana State Board of Chiropractic Examiners, Texas Board of Chiropractic Examiners, Florida Board of Chiropractic Medicine, Arizona Board of Chiropractic Examiners, Federation of Chiropractic Licensing Boards – PACE, 2023.

2023 National Spine Management Conference South – Moving from a Curative Model of Spine Care - A comprehensive look at the history of spinal care, degenerative changes and both regional and global spinal compensation.

Outline the spine as a whole organ system that must be monitored in relation to physical activity, lifestyle, and traumatic patient history was discussed and presented. Application of spine management principles mirroring internal medicine disorders was presented and reviewed. Specific peer reviewed medically index research was presented outlining initial criteria for determining medical necessity of supportive spine care. National Spine Management Group, LLC, Parker University, Alabama State Board of Chiropractic Examiners, Kentucky Board of Chiropractic, Louisiana State Board of Chiropractic Examiners, Texas Board of Chiropractic Examiners, Florida Board of Chiropractic Medicine, Arizona Board of Chiropractic Examiners, Federation of Chiropractic Licensing Boards – PACE, 2023.

2023 National Spine Management Conference South – Anatomy and Physiology of the Healthy Intervertebral Disc

- Anatomy of the healthy intervertebral disc and its nerve supply will be reviewed. A brief overview of the biochemical structure of the intervertebral disc will be presented. The role of the intervertebral disc as a spinal stabilizer and its influence on facet joint function will be outlined. Specific attention will be given to radiologic vocabulary such as intervertebral disc herniation, extrusion, sequestration, and traumatic annular tears. National Spine Management Group, LLC, Parker University, Alabama State Board of Chiropractic Examiners, Kentucky Board of Chiropractic, Louisiana State Board of Chiropractic Examiners, Texas Board of Chiropractic Examiners, Florida Board of Chiropractic Medicine, Arizona Board of Chiropractic Examiners, Federation of Chiropractic Licensing Boards – PACE, 2023.

2023 National Spine Management Conference South – Interprofessional Communication with Primary Care Physicians

- Research trends and working with primary care physicians was outlined. Focus on the conservative management of spinal conditions, aiding the primary care clinic and working to prevent unnecessary escalation of care. Reduction in opioid utilization and reduced surgery trends will be discussed. Research documenting modulation of pain at the central nervous system level with the chiropractic adjustment was presented. Application to real world scenarios including evaluation and management documentation was reviewed. Details of effective communication were presented including phone call, email, fax, and text messaging within the HIPAA compliance environment was discussed. National Spine Management Group, LLC, Parker University, Alabama State Board of Chiropractic Examiners, Kentucky Board of Chiropractic, Louisiana State Board of Chiropractic Examiners, Texas Board of Chiropractic Examiners, Florida Board of Chiropractic Medicine, Arizona Board of Chiropractic Examiners, Federation of Chiropractic Licensing Boards – PACE, 2023.

2023 National Spine Management Conference South – Interprofessional Communication with Pain Management Physicians - *Chiropractic diagnosis of spinal ligament pathology will be discussed in the context of co-management with pain management specialists. Specific review of the role of a fellowship trained interventional pain management physician in your community will be presented. Review of epidural steroid injection, medial branch block and spinal ablation will be presented in the context of when and how to refer.* National Spine Management Group, LLC, Parker University, Alabama State Board of Chiropractic Examiners, Kentucky Board of Chiropractic, Louisiana State Board of Chiropractic Examiners, Texas Board of Chiropractic Examiners, Florida Board of Chiropractic Medicine, Arizona Board of Chiropractic Examiners, Federation of Chiropractic Licensing Boards – PACE, 2023.

2023 National Spine Management Conference South – Interprofessional Communication with the Spine Surgeon - *Spinal sagittal balance and spine surgery research trends will be reviewed. Chiropractic's role in the conservative management of spinal biomechanics pre-surgery and post-surgery will be outlined. Terminology and documentation requirements will be presented.* National Spine Management Group, LLC, Parker University, Alabama State Board of Chiropractic Examiners, Kentucky Board of Chiropractic, Louisiana State Board of Chiropractic Examiners, Texas Board of Chiropractic Examiners, Florida Board of Chiropractic Medicine, Arizona Board of Chiropractic Examiners, Federation of Chiropractic Licensing Boards – PACE, 2023.

2023 National Spine Management Conference South – Anatomy and Physiology of the Degenerated Intervertebral Disc - *Anatomy of the degenerative intervertebral disc and its nerve supply will be reviewed. An overview of the biochemical process of intervertebral disc degeneration will be outlined. Specific attention will be given to the Pfirrmann Scale and radiographic terms such as desiccation, intervertebral disc bulge and degenerative annular tears.*

2023 National Spine Management Conference South – Basic Spinal Biomechanical Modeling – *Basic spinal biomechanical principles will be reviewed including sagittal spinal alignment and coronal positioning in relation to the spinal facet joints. Research trends including symptomatic vs asymptomatic spinal parameters will be presented in the context of the Doctor of Chiropractic as the portal of entry spine care provider.*

2023 National Spine Management Conference South – Spinal Ligament Histological Structure and Function - *Histology of ligament structure and function will be presented. Microanatomy and the wound repair process will be discussed. Structural deficits post ligament injury will be presented and reviewed. Anatomical positioning of ligamentous structures will be outlined with specific attention to the spinal entheses and the difference between an enthesophyte and osteophyte in spinal degeneration.*

2023 National Spine Management Conference South – Spinal Ligament Traumatic Pathology - *Ligament pathology as a source of persistent spinal pain and dysfunction will be outlined and reviewed. Objectifying ligament injury will be presented, and context will be provided using plain film radiographs and MRI examples. Focus on facet capsules and interspinous ligament will be central to the discussion.*

2023 National Spine Management Conference South – Compliance and Documentation - *Review of federal documentation guidelines with specific focus on CPT coding for initial and re-evaluation visits. Detailed outcomes of documentation audits by insurance carriers, regulator and special investigators will be presented in a case study format. Emphasis will be placed interprofessional communication and compliance.*

2023 National Spine Management Conference South – Trends in Chiropractic Research - *Review and discussion of 2022/2023 research supporting the chiropractic profession and the doctor of chiropractor as a spine care manager. Specific papers will be presented related to the pain management, corrective, and health maintenance phases of chiropractic care. Overview of current and future research trends will be demonstrated.*

Spine Management – discussion and outline of case management workflows related to the management of acute and chronic spine pain with a particular focus on pain of traumatic origin. Evidence-Based communication and Electronic Health Record processes were emphasized and presented. Patient management and triage based on patient history, physical examination and imaging findings was outlined. Overview of interprofessional referral options including physical therapy, interventional pain management and spine surgery was discussed in detail. Spine Management as concept was discussed by Dr. John Edwards, neurosurgeon in relation to reducing escalation of non-urgent cases as well as creating space for patients with urgent need. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, College of Chiropractic – Ft. Lauderdale, Florida 2022.

Documentation and Communication in Spine Management – presentation of compliant healthcare documentation including E/M initial and re-evaluations, daily progress notes and medical-legal narrative reports was provided. Workflows detailing interprofessional referral language, advanced imaging requests and patient communication were detailed. Streamlined processes for creating and maintaining compliant, evidence based, patient centered clinical reporting was given. Emphasis was placed on the role of a Spine Management Physician in the processes of interprofessional communication and case management. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, College of Chiropractic – Ft. Lauderdale, Florida 2022.

Accident Reconstruction and Expert Reporting – Crash dynamics and basic physics formulas were presented and detailed. Review of biomechanical expert reports and included mathematics was discussed with context given to data collection and accuracy. Spinal injury thresholds were reviewed as well as the Law of Conservation of Energy and its relationship to crash dynamics. Specific mathematical examples were presented including workflows to review the accuracy of biomechanical expert reporting and mathematical formulas. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, College of Chiropractic – Ft. Lauderdale, Florida 2022.

Histology and Physical Tolerance of Spinal Ligaments – presentation of the histological structural organization of spinal ligaments including analysis of tropocollagen as the basis for anatomical structure. Review of the structural hierarchy of the spinal ligament from microscopic to macroscopic was included. Anisotropic properties of spinal ligaments were defined, and examples presented. Detailed review of spinal entheses was presented with emphasis on advanced imaging and chronic enthesopathy. New insights into the pathogenesis, diagnostic modalities, and treatment of spinal enthesitis was outlined and presented. Specific focus was on traumatic injury to the spinal entheses and the difference in formation of spinal osteophytes and enthesophytes. Biomechanics of the degenerative spine was detailed and reviewed in terms of clinical spine management. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, College of Chiropractic – Ft. Lauderdale, Florida 2022.

Degenerative versus Acute Ligament Laxity – an updated scientifically validated grading system for the identification of degeneration of the intervertebral disc and motion segment was presented. Details such as radiographic signs of disc degeneration including loss of disc height, osteophyte formation and diffuse sclerosis were provided. Grading examples were provided in radiographic and gross specimen form starting with Grade 0 (no degeneration) to Grade 3 (severe degeneration). Outline of the validity and interobserver agreement of this grading system was shown for both the cervical and the lumbar spine. Review and emphasis on the difference between osteophyte formation and enthesophytes was again outlined. National Spine Management Group, LLC, Federation of Chiropractic Licensing Boards, Cleveland University Kansas City, College of Chiropractic – Ft. Lauderdale, Florida 2022.

National Registry of Certified Medical Examiners Training, this included studies on vision, FMCSA regulations for vision: visual acuity, peripheral horizontal vision fields, color recognition, pupil accommodation, monocular vision, federal vision exemptions. Hearing: FMCSA regulations for hearing: Meniere's Disease, Vertigo, Labyrinthine Fistula, Nonfunctioning Labyrinth, Audiometric Test, Force whisper test. Cardiovascular Disease: FMCSA regulations for cardiovascular disease: Coronary Heart Disease, Myocardial Disease, Post Heart Transplant, Valvular Heart Disease, Congenital Heart Disease, Cardiac Arrhythmias and Treatments, Aneurysms, Peripheral Vascular Disease, and Venous Disease and Treatment. Hypertension: FCSA regulations for Hypertension. Diabetes Mellitus: FMCSA regulations for Diabetes Mellitus, Incretin Mimetic, Insulin Therapy, Oral Hypoglycemic. Respiratory System: FMCSA regulation for Respiratory System: Asthma and Allergy related Disease, Chronic Obstructive Pulmonary Disease, Chronic Sleep Disorders, Infectious Respiratory Diseases, Non-Infectious Disease. Neurological Conditions: FMCSA regulation for Neurological Conditions: Episodic Neurological Conditions, Neuromuscular Disease, Progressive Neurological Conditions, Static Neurological Conditions. Musculoskeletal: FMCSA regulation for Musculoskeletal Conditions: Neuromuscular Diseases, Skilled Performance Tests. Other: Urinalysis, Psychological Disorders Drug and Alcohol Testing. Accreditation Council for Continuing Medical Education (ACCME), Lenexa, KS, 2025.

Continuing Medical Education (CME)

MRI Online – Advanced Imaging Education 122 hours in Advanced imaging training, Accredited through The Johns Hopkins School of Medicine.

Total CME Credits Earned: 65.5 AMA PRA Category 1 Credits™

Date: April 10, 2024 – August 13, 2024

Accrediting Body: Accreditation Council for Continuing Medical Education (ACCME)

Mastery Series – Advanced Diagnostic Imaging

Credits Earned: 50.25 AMA PRA Category 1 Credits™

- Advanced imaging interpretation in neuroradiology, musculoskeletal (MSK), head and neck, vascular imaging, and oncologic imaging.
- Specialized coursework in spine imaging, degenerative joint disease (DJD), and traumatic brain injury.
- Emergency imaging coverage for brain, chest, abdomen, and musculoskeletal (MSK) cases.

Emergency Series – Comprehensive Emergency Radiology Training

Credits Earned: 9.75 AMA PRA Category 1 Credits™

- **Emergency Imaging: Brain (6.75 CME credits)** – Advanced neuroradiology techniques in brain trauma cases using MRI, CT, CTA, and perfusion imaging.
- **Emergency Imaging: Head, Neck & Spine (7.5 CME credits)** – Interpretation of traumatic and emergent conditions involving the cervical spine and skull base.

Synovial Joints - 2022 Enduring Course

Credits Earned: 5.75 AMA PRA Category 1 Credits™

- Detailed review of synovial joint articulations, anatomical variants, and abnormalities across multiple imaging modalities.

Modality-Based Training

- **MRI:** 41.25 CME credits
- **CT:** 24.5 CME credits
- **X-ray (Plain Films):** 10.75 CME credits
- **Ultrasound:** 1.0 CME credit
- **Angiography:** 1.25 CME credits
- **CTA/CTV:** 1.5 CME credits
- **Molecular Imaging & PET:** 0.5 CME credits
- **Fluoroscopy:** 0.25 CME credits

Subspecialty-Based Training

- **Musculoskeletal Imaging (MSK):** 34.25 CME credits
- **Neuroradiology:** 39.75 CME credits
- **Emergency Radiology:** 22.0 CME credits
- **Head & Neck Imaging:** 12.0 CME credits
- **Vascular Imaging:** 4.5 CME credits
- **Chest Imaging:** 3.25 CME credits
- **Oncologic Imaging:** 0.25 CME credits
- **Gastrointestinal (GI) Imaging:** 2.75 CME credits
- **Genitourinary (GU) Imaging:** 0.75 CME credits
- **Pediatrics:** 2.75 CME credits
- **Interventional Radiology:** 1.25 CME credits

Key Courses Completed

- **Brain Anatomy (3.0 CME credits)** – In-depth anatomical review of supratentorial and infratentorial brain structures using MRI and CT.
- **Degenerative Joint Disease (DJD) of the Spine (3.25 CME credits)** – Imaging-based evaluation of spinal degeneration and associated pathologies.
- **Emergency Body Imaging: Abdomen & Pelvis (3.5 CME credits)** – Multimodal imaging approach to acute abdominal and pelvic conditions.
- **Shoulder MRI Mastery (6.75 CME credits)** – Advanced training in shoulder pathology interpretation using MRI and CT.
- **Spine MRI with Neurosurgeon Consult (4.25 CME credits)** – Case-based review of complex spine cases, integrating surgical considerations.
- **The Carotid Space (3.25 CME credits)** – Vascular, oncologic, and neuroradiologic imaging approaches to carotid space lesions.
- **Traumatic Brain Injury (3.75 CME credits)** – Multimodal imaging interpretation of TBI cases with a focus on interventional and emergency applications.

Total CME Credits Earned: 34.5 AMA PRA Category 1 Credits™

Date: January 16, 2025 – February 6, 2025

Accrediting Body: Accreditation Council for Continuing Medical Education (ACCME)

Mastery Series – Advanced Diagnostic Imaging

Credits Earned: 22.75 AMA PRA Category 1 Credits™

- In-depth case-based learning in multiple subspecialties, including musculoskeletal (MSK), neuroradiology, oncologic imaging, and vascular imaging.
- Specialized training in imaging interpretation of brain tumors, fetal heart evaluations, and temporomandibular joint (TMJ) MRI.
- Advanced diagnostic imaging techniques in knee and hip MRI and pediatric MSK imaging.

Expert Case Review – Chest & Emergency Radiology

Credits Earned: 11.75 AMA PRA Category 1 Credits™

- **Chest Imaging Case Reviews (9.0 CME credits)** – Advanced review of chest imaging with CT, X-ray, and MRI modalities.
- **ER Case Review On-Demand (2.75 CME credits)** – Emergency radiology case-based learning, including pediatric and interventional imaging.

Modality-Based Training

- **MRI:** 24.0 CME credits
- **X-ray (Plain Films):** 5.75 CME credits
- **Ultrasound:** 4.5 CME credits
- **CT:** 5.25 CME credits
- **Arthrography:** 0.5 CME credits
- **Perfusion Imaging:** 0.25 CME credits

Subspecialty-Based Training

- **Musculoskeletal Imaging (MSK):** 17.0 CME credits
- **Neuroradiology:** 6.75 CME credits
- **Oncologic Imaging:** 4.0 CME credits
- **Emergency Radiology:** 2.75 CME credits
- **Pediatrics:** 7.5 CME credits
- **Cardiac Imaging:** 1.5 CME credits
- **Interventional Radiology:** 1.0 CME credit
- **Chest Imaging:** 9.0 CME credits
- **Vascular Imaging:** 0.25 CME credits
- **Head & Neck Imaging:** 3.0 CME credits
- **Body Imaging:** 0.25 CME credits

Key Courses Completed

- **Brain Tumor Imaging (4.0 CME credits)** – Advanced oncologic imaging techniques in perfusion, CT, and MRI.
- **Fetal Heart and Great Vessel Evaluation (1.5 CME credits)** – Specialized training in cardiac and vascular imaging.
- **Knee MRI Mastery (7.75 CME credits)** – Comprehensive review of knee anatomy and pathology interpretation.
- **Hip MRI Mastery (2.25 CME credits)** – Detailed study of labral pathology and femoroacetabular impingement.
- **Pediatric MSK Imaging (4.25 CME credits)** – Interpretation of common pediatric bone and soft tissue conditions.
- **Temporomandibular Joint (TMJ) MRI (3.0 CME credits)** – Evaluation of TMJ disorders and internal derangements.

MRI Online – Advanced Imaging Education

Total CME Credits Earned: 15.75 AMA PRA Category 1 Credits™

Date: February 18, 2025 – March 5, 2025

Accrediting Body: Accreditation Council for Continuing Medical Education (ACCME)

Mastery Series – Specialized Diagnostic Imaging

Credits Earned: 15.75 AMA PRA Category 1 Credits™

- Advanced training in neuroradiology, musculoskeletal (MSK), vascular imaging, and nuclear medicine.
- Specialized coursework in neurodegenerative diseases, white matter disease, and gastrointestinal imaging.
- Interpretation of complex brain imaging cases, including neurovascular MRI and sella MRI.

Modality-Based Training

- **MRI:** 15.5 CME credits
- **CT:** 2.25 CME credits
- **Ultrasound:** 0.25 CME credits
- **Angiography:** 0.25 CME credits
- **Fluoroscopy:** 0.25 CME credits
- **Molecular Imaging & PET:** 0.5 CME credits

Subspecialty-Based Training

- **Neuroradiology:** 13.75 CME credits
- **Musculoskeletal Imaging (MSK):** 0.75 CME credits
- **Head & Neck Imaging:** 3.0 CME credits
- **Vascular Imaging:** 0.75 CME credits
- **Pediatrics:** 1.0 CME credit
- **Gastrointestinal (GI) Imaging:** 2.0 CME credits
- **Nuclear Medicine:** 0.5 CME credits
- **Body Imaging:** 2.0 CME credits

Key Courses Completed

- **Biliary Disease (2.0 CME credits)** – Advanced imaging techniques in the evaluation of biliary disorders using CT, MRI, fluoroscopy, and ultrasound.
- **Neurodegenerative Disease MRI (3.5 CME credits)** – Imaging-based assessment of dementia, neurodegenerative pathologies, and PET/MRI correlation.
- **Neurovascular MRI (3.25 CME credits)** – Comprehensive review of cerebrovascular anatomy, pathology, and angiographic assessment.
- **Sella MRI (3.0 CME credits)** – Interpretation of pituitary and sellar region abnormalities using MRI and CT.
- **White Matter Disease (4.0 CME credits)** – Evaluation of demyelinating disorders and vascular contributions to white matter pathology using MRI and angiography.

Gavin Norton

D.C. F.S.B.T.

Spine Management
Physician

301 Allison Street, K-66010

Skills & Abilities

- Extensive understanding and Passion for Pain Management and whole-body wellness.
- Comprehensive, up to date understanding of Spine Care Management
- Multidisciplinary approach focusing on evidence-based treatment.
- Exceptional bedside manor
10+ years Patient Care experience
- Effective communication using active listening and open-ended questioning to establish rapport, and explaining complex terms, medical conditions, and treatment options in plain language.

Spine Management Physician, Fellowship/ Residency trained in Pain management, Orthopedics, and Neurosurgery interventional evaluation, diagnosis, and Case Management. Extensive training in the integrated approach to treating and managing MSK complaints in both the acute and chronic presentations. "Chiropractic is great, when necessary, but nothing is more beneficial than finding the source of the pain and treating THAT."

Education

Cleveland University January 2019-April 2023

- Bachelor of Science in Human Anatomy – December 2022
- Doctor of Chiropractic– April 2023
- Parts I, II, III, IV N.B.C.E. Certified
- Physical Therapy N.B.C.E. Certified

National Spine Management Group. Lehi, Ut

- Residency in Spinal Biomechanics and Trauma – May 2024

The Johns Hopkins University School of Medicine

- Advanced Imaging: Medality Mastery Complete Spine
- Emergency Imaging of the Head, Neck, Spine, Shoulder, Knee, Hip,

Experience

Midwest Chiropractic Center August 2024 – Present

Chiropractor

Sole chiropractor at the office location providing care and managing patient referrals. Working closely with physiatry for proper patient management and referrals for additional procedures. Providing chiropractic treatment, interpreting MRI/X-ray images, Class IV laser treatment, working directly with VA benefits and referrals. Managing business decisions for my location and assisting in day to day operations for clinic management.

National Spine Management Group May 2023 – August 2024

Spinal Biomechanics and Trauma Residency:

Portal of Entry and case management training for Pain Management, Neuroradiology, Ortho-Extremity, Ortho-Spine, Neurosurgery, Emergency Medicine, Family Medicine. Clinic, minimally invasive procedure, and operating room observational rotations creating fundamental understanding of physical examination, advanced imaging interpretation, diagnosis, and proper referral and treatment options for conditions of the brain, spine, and extremities. Comprehensive understanding in the identification of disc and facet pain and the use of ESI, MBB, RFA, Prolotherapy, and most importantly Physical Rehabilitation. Identifying symptoms and pathology requiring surgical consultation and managing proper referral pathways for patients.

Meylor Chiropractic and Acupuncture: (May 2023 – August 2024)

Documentation and Case management. Chiropractic and Acupuncture treatment for MSK conditions and integrated management with Pain Management, Orthopedics, and Concussion providers.

Chiropractic Intern Cleveland University July 2022-April 2023

Analyzed x-rays to locate sources of patients' difficulties and to rule out fractures and diseases as sources of problems, maintained accurate case histories of patients, Obtained and recorded patients' medical histories, Evaluated functioning of neuromusculoskeletal system and spine using systems of chiropractic diagnosis, Advised patients about recommended courses of treatment.

Placement Coordinator – HCA midwest Sept. 2017 – March 2023

Created patient transfer packets, coordinated patient transfers between facilities, Navigating EMR, coordinating care with providers to place patients from the HCA emergency rooms in the appropriate levels of care. Comprehensive EMR system comprehension. Effective communication with providers to determine salient patient comorbidities and requirements.