DES MOINES UNIVERSITY
College of Osteopathic Medicine

OSTEOPATHIC MANUAL MEDICINE CLERKSHIP

G. Bradley Klock, D.O., FAAO
Chair, Department of Manual Medicine
515-271-1418

Office for Clinical Affairs
515-271-1667
FAX 515-271-1727

GENERAL DESCRIPTION

Elective Rotation

This elective rotation is to be either a two (2) week or four (4) week experience in an osteopathic manual medicine clerkship. It is intended to be a structured clinical experience, under direct supervision, in clinical osteopathic manual medicine. This introductory clinical experience is a time to build/reinforce clinical problem-solving and decision-making skills and a time to gain clinical experience and build on the student's foundation of didactic information.

The Department of Osteopathic Manual Medicine will administer a post-rotation examination when the student has completed his/her rotation. Please refer to the section on Post-Rotation Evaluations and Examinations.

Purpose

Clinical experiences are intended to assist the student's transition from didactic to integrated clinical evaluation and patient management. The student will develop skills in systematic medical problem-solving and patient management. We expect the experience will reinforce patterns of independent learning and self-evaluation and improve skills in communication and medical record keeping. Students are expected to assist in the management of acute and chronic problems and by performing osteopathic manual medical procedures under direct supervision, further his/her diagnostic and treatment skills.

At the completion of the rotation, the student should have achieved the following competencies:

- Develop the understanding that OMM is both a diagnostic and treatment modality.
- Understand the medical relevance of neuromusculoskeletal problems and how they fit into a patient's total medical diagnosis.
- Gain the capacity to identify common structural patterns generated by visceral pathology.
- Develop the ability to accurately diagnose common neuromusculoskeletal problems by obtaining an appropriate history and by performing competent physical, neurologic, and structural examinations, laboratory diagnostic evaluation and the medical imaging needed to arrive at a correct and complete diagnosis.
- Become competent in the effective application of osteopathic manual medicine techniques to address common neuromusculoskeletal problems.

- Learn to recognize the deconditioned patient and appreciate the necessity to prescribe rehabilitative/therapeutic exercises to address specific musculoskeletal imbalances to manage, more effectively, conditions that would otherwise become chronic.
- Become comfortable educating the patient about his/her medical condition(s) thereby assisting them to develop the personal stewardship skills necessary to take appropriate responsibility for managing those and related medical issues.
- To gain the comfort of competency in utilizing osteopathic manual medicine safely, efficiently and effectively in a busy clinical setting and further, to be competitive in a pay-for-performance medical climate.
- To develop the skills to be confident in physically approaching and examining all patients in a professional and non-threatening manner.

CLINIC OBJECTIVES

General Overview

The student will be able to:

- Elicit a record of an appropriately complete, cogent and organized focused medical history through the comprehensive collection of basic, relevant facts in a logical, systematic order, using appropriate and accepted osteopathic medical terminology.
- Conduct and record an appropriately complete and accurate osteopathic structural examination and document findings using acceptable osteopathic terminology.
- Communicate in a facilitative, effective, efficient and educational manner with patients and their families.
- Formulate and record a problem list for the patient who presents with a neuromusculoskeletal complaint.
- Identify the social and psychological components of patients' medical problems.
- Use knowledge of the pathophysiology of signs and symptoms to establish clinical correlation between structural findings with disease processes.
- Formulate a logical differential diagnosis.
- Formulate an appropriate plan for confirming and treating the diagnosis.
- Use knowledge of the indications and limitations of clinical sources such as laboratory and roentgenographic studies, consults, family input and old records to request and interpret data pertinent to problem-solving.
- Use information from respected and current texts, syllabi and journals to study general topics related to the patient's problems.
- Observe, review, reassess and revise the management plan; record patient progress in the medical record; and make a verbal report to the health care team.
- Communicate clearly and succinctly to colleagues and other members of the health care team.
- Apply those technical skills commonly employed on a medical service.
- Formulate an appropriate initial treatment program taking into account the urgency of the patient's problems.
- Formulate an appropriate ongoing health care plan for patients within their socioeconomic situation.
- Integrate the use of the recognized osteopathic treatment modalities (muscle energy, high velocity/low amplitude, strain/counterstrain, myofascial release, cranial, soft tissue, facilitated positional release and Still technique) into patient care.
- Integrate the use of osteopathic manual medicine into the total management of common clinical conditions (including but not limited to, upper respiratory tract infections, low back pain, neck pain, thoracic pain, osteoarthritis, rheumatoid arthritis, fibromyalgia, radiculopathies, hypertension, coronary artery disease, headaches and pregnancy).

Implementation

Course objectives are to be met in a hospital or clinical facility, under supervision. Basic objectives must be covered during the rotation to assure adequate student preparation for post-rotation examinations, Board examinations, post-doctoral training and independent patient care. The use of diverse methods appropriate to the individual and the clinical site are encouraged, but patient-centered teaching is considered optimal.

Didactic methods to achieve required objectives include:

- Reading assignments
- Lectures (informal presentations by the attending physician)
- Computer-assisted programs (when available)

Clinical teaching methods include:

- Participation in clinic visits
- Inpatient rounds (when possible)
- Daily lectures and/or conferences (when possible)
- Supervised and critiqued clinical work-ups of patients admitted to the service (when possible)
- Assigned, case-oriented reading and case presentations (when possible)

Three levels of achievement are identified:

- Observation
- Assisting
- Implementation with proficiency

The curriculum detailed below is adapted from the CDIM-SGIM Core Medicine Clerkship Curriculum Guide Ver. 3.4. It specifies and prioritizes course objectives in terms of the basic osteopathic manual medicine core clinical competencies and the specific learning objectives (knowledge, skills and attitudes) pertinent to those competencies. **Every effort should be made to integrate them into the osteopathic manual medicine clerkship.**

Detailed General Clinical Core Competencies

DIAGNOSTIC DECISION-MAKING

Rationale:

Physicians are responsible for directing and conducting the diagnostic evaluation of a broad range of patients, including patients seeking advice on prevention of and screening for disease, and patients with acute and chronic illnesses. In a time of rapidly proliferating tests, medical students must learn how to design safe, expeditious and cost-effective diagnostic evaluations. This requires well-developed diagnostic decision-making skills that incorporate probability-based thinking.

Specific Learning Objectives:

A. **Knowledge:** Students should be able to define, describe and discuss:

1. Key history and physical examination findings pertinent to the differential diagnosis. *(MK)*
2. Information resources for determining diagnostic options for patients with common and uncommon medical problems. *(MK, PLI)*
3. How critical pathways or practice guidelines can be used to guide diagnostic test ordering. *(MK)*

B. **Skills:** Students should demonstrate specific skills, including:

1. Identifying problems with which a patient presents, appropriately synthesizing these into logical clinical syndromes. *(PC, MK)*
2. Identifying the problems that are of highest priority. *(PC, MK)*
3. Formulating a differential diagnosis based on the findings from the history and physical examination. *(PC)*
4. Using the differential diagnosis to help guide diagnostic test ordering and sequencing. *(PC, MK)*
5. Communicating the prioritized differential diagnosis to the patient and his or her family. *(CS, PC)*

C. **Attitudes and professional behaviors:** Students should be able to:

1. Incorporate the patient's perspective into diagnostic decision-making. *(P, PC)*
2. Seek feedback regularly regarding diagnostic decision-making and respond appropriately *(P, PC)*
3. Recognize the importance of and demonstrate a commitment to the utilization of other health care professionals in diagnostic decision-making. *(P, SBP, PC, MK)*

AOA Competencies:

PC = Patient Care
MK = Medical Knowledge
PLI = Practice-Based Learning and Improvement
CS = Communication Skills
P = Professionalism
SBP = Systems-Based Practice

CASE PRESENTATION SKILLS

Rationale:

Communicating patient care information to colleagues and other health care professionals is an essential skill regardless of specialty. Students should develop familiarity with different types of case presentations: written and oral, new patient and follow-up, inpatient and outpatient.

Specific Learning Objectives:

A. **Knowledge:** Students should be able to define, describe and discuss components of comprehensive and abbreviated case presentations (oral and written) and settings appropriate for each. *(MK)*

B. **Skills:** Students should be able to demonstrate specific skills, including:

1. Prepare legible, comprehensive and focused new patient workups that include the following features as clinically appropriate:
   - Concise history of the present illness organized chronologically with minimal repetition, omission or extraneous information, and including pertinent positives and negatives. *(PC, CS)*
   - A comprehensive physical examination with detail pertinent to the patient's problem. *(PC, CS, MK)*
   - A succinct, prioritized and, where appropriate, complete list of all problems identified by the history and physical examination. *(PC, CS, MK)*
   - A differential diagnosis for each problem (appropriate for the student's level of training. *(PC, CS, MK)*
   - A diagnostic and treatment plan for each problem (appropriate for the student's level of training). *(PC, CS, MK)*
2. Orally present a new patient's case in a logical manner, chronologically developing the present illness, summarizing the pertinent positive and negative findings as well as the differential diagnosis and plans for further testing and treatment. *(PC, CS)*
3. Orally present a follow-up patient's case, in a focused, problem-based manner that includes pertinent new findings and diagnostic and treatment plans. *(PC, CS)*
4. Select the mode of presentation that is most appropriate to the clinical situation (e.g. written vs. oral, long vs. short, etc.). *(PC, CS)*

C. **Attitudes and Professional Behaviors:** Students should be able to:

1. Demonstrate ongoing commitment to improving case presentation skills by regularly seeking feedback on presentations. *(PLI, P)*
2. Accurately and objectively record and present all data. *(P, CS)*

AOA Competencies:

PC = Patient Care
MK = Medical Knowledge
PLI = Practice-Based Learning and Improvement
CS = Communication Skills
P = Professionalism
SBP = Systems-Based Practice

HISTORY-TAKING AND PHYSICAL EXAMINATION

Rationale:

The ability to obtain an accurate medical history and carefully perform a physical examination is fundamental to providing comprehensive care to patients. In particular, the physician must be thorough and efficient in obtaining a history and performing a physical examination with a wide variety of patients, including healthy patients (both young and old), those with acute and chronic medical problems, those with complex life-threatening diseases, and those from diverse socioeconomic and cultural backgrounds. The optimal selection of diagnostic tests, choice of treatment and use of subspecialists, as well as the physician's relationship and rapport with patients, all depend on well-developed history-taking and physical diagnosis skills. These skills, which are fundamental to effective patient care, should be a primary focus of the student's work during the core clerkship in osteopathic manual medicine.

Specific Learning Objectives:

A. **Knowledge:** Students should be able to define, describe and discuss:

1. The significant attributes of a symptom, including: location and radiation, intensity, quality, temporal sequence (onset, duration, frequency), alleviating factors, aggravating factors, setting, associated symptoms, functional impairment and patient's interpretation of symptom. *(MK)*
2. The methods of physical examination (inspection, palpation and motion-testing), including where and when to use them, their purposes and the findings they elicit. *(MK)*
3. The physiologic mechanisms that explain key findings in the history and physical exam. *(MK)*
4. The diagnostic value of the history and physical examination. *(MK)*

B. **Skills:** Students should be able to demonstrate specific skills, including:

1. Using language appropriate for each patient. *(PC, CS)*
2. Eliciting the patient's chief complaint as well as a complete list of the patient's concerns. *(PC, CS)*
3. Obtaining a patient's history in a logical, organized and thorough manner; covering the history of present illness, past medical history (including usual source of and access to health care, childhood and adult illnesses, injuries, surgical procedures, obstetrical history, psychiatric problems, hospitalizations, transfusions, medications, tobacco and alcohol use and drug allergies), preventive health measures, social, family and occupational history, and review of systems. (MK)
4. Demonstrating proper hygienic practices whenever examining a patient. *(PC, P)*
5. Properly positioning the patient and self for each part of the physical examination. *(PC, P)*
6. Performing a physical examination for a patient in a logical, organized, respectful and thorough manner; giving attention to the patient's general appearance, vital signs and pertinent body regions. *(PC, P)*
7. Adapting the scope and focus of the history and physical exam appropriately to the medical situation and the time available. *(PC)*

AOA Competencies:

PC = Patient Care
MK = Medical Knowledge
PLI = Practice-Based Learning and Improvement
CS = Communication Skills
P = Professionalism
SBP = Systems-Based Practice

C. **Attitudes and professional behaviors:** Students should be able to:

1. Recognize the essential contribution of a pertinent history and physical examination to patient care. *(P, MK, PC)*
2. Establish a habit of updating historical information and repeating important parts of the physical examination during follow-up visits. *(P, PC, MK)*
3. Demonstrate consideration for the patient's feelings, limitations and cultural and social background whenever taking a history and performing a physical exam. *(P, PC)*

INTERPRETATION OF CLINICAL INFORMATION

Rationale:

In the routine course of clinical practice, most physicians are required to order and interpret a wide variety of diagnostic tests and procedures. Determining how these test results (in conjunction with structural findings) will influence clinical decision-making and communicating this information to patients in a timely and effective manner are core clinical skills that third and fourth-year medical students should possess.

Specific Learning Objectives:

A. **Knowledge:** Students should be able to:

1. Interpret specific diagnostic tests and procedures that are ordered to evaluate patients who present with common symptoms encountered in the practice of osteopathic manual medicine. *(PC, MK)*
2. Take into account the important differential diagnostic considerations including potential diagnostic emergencies. *(PC, MK)*
3. Define and describe for the tests and procedures listed:
   - Indications for testing. *(PC, MK)*
   - Critical values that require immediate attention. *(PC, MK)*
   - Pathophysiologic implications of abnormal results. *(PC, MK)*
4. Independently and appropriately interpret the results of the following laboratory tests:
   - CBC with diff, UA, electrolytes, BUN/Cr, hepatic function panel, thyroid function tests, pulmonary function tests, ANA, RF, C-reactive protein, SED rate. *(PC, MK)*

B. **Skills:** Students should be able to demonstrate specific skills, including:

1. Interpreting results of the tests listed above and radiologic diagnostic studies *(PC, MK)*
2. Recording the results of laboratory tests in an organized manner using flow sheets when appropriate. *(PC, P)*

C. **Attitudes and Professional Behaviors:** Students should be able to:

1. Appreciate the importance of follow-up on all diagnostic tests and procedures, and provide timely communication of information to patients and appropriate team members. *(P, PC)*
2. Personally review medical imaging studies, laboratory tests, etc., to assess the accuracy and significance of the results. *(P, PC)*

THERAPEUTIC DECISION-MAKING

Rationale:

Physicians are responsible for directing and coordinating the therapeutic management of patients with a wide variety of problems, including critically ill patients with complex medical problems and the chronically ill. To manage patients effectively, physicians need basic therapeutic decision-making skills that incorporate both pathophysiologic reasoning and evidence-based knowledge.

Specific Learning Objectives:

A. **Knowledge:** Students should be able to define, describe and discuss:

1. Information resources for determining medical and surgical treatment options for patients with common and uncommon medical problems. *(MK)*
2. How to use critical pathways and clinical practice guidelines to help guide therapeutic decision-making. *(MK)*
3. Factors that frequently alter the effects of medications, including drug interactions and compliance problems. *(MK)*
4. Factors to consider in selecting a medication from within a class of medications. *(MK)*
5. Factors to consider in monitoring a patient's response to treatment, including potential adverse effects. *(MK)*
6. Methods of monitoring therapy and how to communicate them in both written and oral form. *(MK)*

B. **Skills:** Students should be able to demonstrate specific skills, including:

1. Formulating an initial therapeutic plan. *(PC)*
2. Accessing and utilizing, when appropriate, information resources to help develop an appropriate and timely therapeutic plan. *(PC, PLI)*
3. Learning the skills necessary to write prescriptions safely and accurately. *(PC)*
4. Counseling patients about how to take their medications and what to expect when doing so, including beneficial outcomes and potential adverse effects. *(PC, CS)*
5. Monitoring response to therapy. *(PC)*

C. **Attitudes and Professional Behaviors:** Students should be able to:

1. Incorporate the patient in therapeutic decision-making, explaining the risks and benefits of treatment. *(CS, P)*
2. Respect patient's informed choices, including the right to refuse treatment. *(P)*
3. Demonstrate an understanding of the importance of close follow-up of patients under active care. *(P)*
4. Recognize the importance of, and demonstrate a commitment to, the utilization of other health care professionals in therapeutic decision-making. *(P, SBP)*

AOA Competencies:

PC = Patient Care
MK = Medical Knowledge
PLI = Practice-Based Learning and Improvement
CS = Communication Skills
P = Professionalism
SBP = Systems-Based Practice

GERIATRIC CARE

Rationale:

Geriatric patients often have multiple, chronic illnesses that may present with atypical symptoms. Management strategies must include the effects of aging on multiple organ systems and the socioeconomic factors faced by our elderly society. As the number of geriatric patients steadily rises, the physician will devote more time to the care of these patients.

Specific Learning Objectives:

A. **Knowledge:** Students should be able to define, describe and discuss:

1. Functional implications of aging on each major organ system. *(MK)*
2. Nutritional needs of the elderly. *(MK)*
3. Key illnesses in the elderly, focusing on their often atypical presentation, including, but not limited to:
   - Cardiovascular and cerebrovascular disease. *(MK)*
   - Diabetes. *(MK)*
   - Urinary tract infection. *(MK)*
   - Pneumonia. *(MK)*
   - Substance abuse. *(MK)*
   - Depression. *(MK)*
   - Thyroid disease. *(MK)*
   - Arthritis, spinal stenosis, disc disease and osteoporosis. *(MK)*
   - Joint replacement. (MK)
   - Constipation. *(MK)*
4. Principles of screening in the elderly, including immunizations, cardiovascular risk, cancer, substance abuse, mental illness, osteoporosis and functional assessment. *(MK)*

B. **Skills:** Students should be able to demonstrate specific skills, including:

1. Taking a complete and focused history from a geriatric patient with attention to current symptoms, chronic illnesses, and physical and mental functioning. *(PC, CS)*
2.. Performing a physical examination and functional assessment on an elderly patient, adapting it to a patient's symptoms, chronic illness and possible conditions of frailty, immobility, hearing loss, memory loss and other impairments. *(PC, OPP)*
3. Performing a cursory mental status examination to evaluate confusion and/or memory loss in an elderly patient. *(PC)*
4. Identifying patients at high risk for falling (making appropriate requests for home environment evaluations). *(PC)*
5. Developing a diagnostic and management plan for patients with the symptoms/conditions common in the geriatric population. *(PC, MK)*
6. Participating in an interdisciplinary approach to management and rehabilitation of elderly patients. *(PC, SBP)*

AOA Competencies:

PC = Patient Care
MK = Medical Knowledge
PLI = Practice-Based Learning and Improvement
CS = Communication Skills
P = Professionalism
SBP = Systems-Based Practice

C. **Attitudes and Professional Behaviors:** Students should be able to:

1. Respect the increased risk for iatrogenic complications among elderly patients by always taking into account risks and monitoring closely for complications. *(P, MK, PC)*
2. Demonstrate respect to older patients, particularly those with disabilities, by making efforts to preserve their dignity and modesty. *(P, PC)*
3. Always treat cognitively-impaired patients and patients at the end of their lives with utmost respect and dignity. *(P, PC)*
4. Appreciate the impact the common geriatric syndromes have on a patient's quality of life, well-being and family. (P, PC)
5. Recognize the importance of and demonstrate a commitment to the utilization of other health care professionals in the diagnosis and treatment of geriatric patients. *(P, SBP)*

AOA Competencies:

PC = Patient Care
MK = Medical Knowledge
PLI = Practice-Based Learning and Improvement
CS = Communication Skills
P = Professionalism
SBP = Systems-Based Practice

CORE TOPICS

Core Topics

It is our hope that students will witness the integration of osteopathic manual medical care into the overall management of common diseases during the rotation. **The post-rotation exam will be structured around material presented during the first two years, the required readings and the use of osteopathic manual medicine in the management of the following medical problems.**

- Upper respiratory tract infections
- Low-back pain
- Neck pain
- Upper and lower extremity pain (radicular symptoms)
- Thoracic pain
- Headache
- Osteoarthritis
- Rheumatoid arthritis
- Fibromyalgia
- Cardiovascular disease
- Hypertension
- Pregnancy
- Spinal stenosis
- Disc disease
- Circulatory (PVD)
- Pulmonary

POST-ROTATION EVALUATIONS AND EXAMINATIONS

Des Moines University Department of Osteopathic Manual Medicine requires a mandatory, comprehensive examination for students completing their elective osteopathic manual medicine clerkship rotation. Post-Rotation exams will be available online through Des Moines University's Portal on Angel and the student must make arrangements to take the examination 24 hours before the examination is to be administered through the DME's office, library or clinical education office at each institution. **The post rotation exam must be taken on the last Thursday or Friday of the clinical rotation.** Passing score for the initial exam is **70%.** A second examination will be available to those who fail the initial one. A score of **70%** is also required to pass this examination. The retake is to be taken within 2 weeks of the initial exam date. Those failing the retake will be required to complete an **oral exam** administered by at least two members of the DMU Osteopathic Manual Medicine faculty. **The student must notify the OMM Department Chair or the academic assistant (or contact Clinical Affairs) immediately following the failure of the retake exam so that an oral exam may be scheduled at DMU.** The final exam grade will be determined by the Department of Osteopathic Manual Medicine at the completion of the oral exam. The student is responsible to make all arrangements, including scheduling the exam time with the Department of Osteopathic Manual Medicine; scheduling time away from his/her current (at the time of approved exam time/date) rotation, and travel expenses. **The oral exam will be video-taped.**

REQUIRED READING

Required Assigned Articles For Two-Week Clinical Clerkships:

Article #1 *Effects of Osteopathic Manipulative Treatment on Pediatric Patients With Asthma: A Randomized Controlled Trial*; Peter A Guiney, DO; Rick Chou, DO; Andrea Vianna, MD; JAOA • Vol. 105 • No 1 • January 2005 • 7-12.

Article #2 *Structural pelvic function.* Mitchell FL. In: Barnes MW, ed. *Year Book 1958: Selected Osteopathic Papers.* Carmel, Calif: Academy of Applied Osteopathy; 1958: Pg 71–90.

Article #3 *The Emerging Concept of the Osteopathic Lesion.* Irvin M. Korr, PhD; JAOA Vol. 48 • No. 3 • November 1948 Pg 127-138 Reprint JAOA Vol. 100 • No. 7 • July 2000 • 449-460

Article #4 *Efficacy of Osteopathic Manipulation as an Adjunctive Treatment for Hospitalized Patients with Pneumonia: a Randomized Control Trial.* Donald R Noll, Brian F Degenhardt, Thomas F Morley, Francis X Blais, Kari A Hortos, Kendi Hensel, Jane C Johnson, David J Pasta, Scott T Stoll; Osteopathic Medicine and Primary Care *4:2 (2010).*

Article #5 *Syndromes of the Lumbar Spine, Pelvis and Sacrum,* Phillip Greenman, Physical Medicine and Rehabilitation Clinics of North America, Volume 7 • No. 4 • November 1996 •773-785.

Article #6 *The use of Osteopathic Manipulative Treatment as Adjuvant Therapy in Children with Recurrent Acute Otitis Media*. Marian V. Mills, MD; Charles E. Henley, DO, MPH; Laura L.B. Barnes PhD; Jane E. Carriero, DO; Brian F. Degenhardt, DO. Archive Pediatric and Adolescent Medicine Vol. 157 • September 2003 •861-6.

Article #7 *Osteopathic Manipulative Treatment in the Emergency Department for Patients With Acute Ankle Injuries*; Anita W Eisenhart, DO; Theodore J Gaeta, DO, MPH; David P Yens, PhD; JAOA • Vol 103 • No 9 • September 2003 • 417-421.

Required Assigned Articles For Four Week Clinical Clerkships:

Article #1 *Effects of Osteopathic Manipulative Treatment on Pediatric Patients With Asthma: A Randomized Controlled Trial*; Peter A Guiney, DO; Rick Chou, DO; Andrea Vianna, MD; JAOA • Vol. 105 • No 1 • January 2005 • 7-12.

Article #2 *Structural pelvic function.* Mitchell FL. In: Barnes MW, ed. *Year Book 1958: Selected Osteopathic Papers.* Carmel, Calif: Academy of Applied Osteopathy; 1958: Pg 71–90.

Article #3 *The Emerging Concept of the Osteopathic Lesion.* Irvin M. Korr, PhD; JAOA Vol. 48 • No. 3 • November 1948 Pg 127-138 Reprint JAOA Vol. 100 • No. 7 • July 2000 • 449-460

Article #4 *Efficacy of Osteopathic Manipulation as an Adjunctive Treatment for Hospitalized Patients with Pneumonia: a Randomized Control Trial.* Donald R Noll, Brian F Degenhardt, Thomas F Morley, Francis X Blais, Kari A Hortos, Kendi Hensel, Jane C Johnson, David J Pasta, Scott T Stoll; Osteopathic Medicine and Primary Care *4:2 (2010).*

Article #5 *Syndromes of the Lumbar Spine, Pelvis and Sacrum,* Phillip Greenman, Physical Medicine and Rehabilitation Clinics of North America, Volume 7 • No. 4 • November 1996 •773-785.

Article #6 *The use of Osteopathic Manipulative Treatment as Adjuvant Therapy in Children with Recurrent Acute Otitis Media*. Marian V. Mills, MD; Charles E. Henley, DO, MPH; Laura L.B. Barnes PhD; Jane E. Carriero, DO; Brian F. Degenhardt, DO. Archive Pediatric and Adolescent Medicine Vol. 157 • September 2003 •861-6.

Article #7 *Osteopathic Manipulative Treatment in the Emergency Department for Patients With Acute Ankle Injuries*; Anita W Eisenhart, DO; Theodore J Gaeta, DO, MPH; David P Yens, PhD; JAOA • Vol 103 • No 9 • September 2003 • 417-421.

Article #8 *Osteopathic Manipulative Treatment in Prenatal Care: A Retrospective Case Control Design Study*; Hollis H King, DO, PhD; Melicien A Tettambel, DO; Michael D Lockwood, DO; Kenneth H Johnson, DO; Debra A Arsenault, DO; Ryan Quist, PhD; JAOA • Vol 103 • No 12 • December 2003 • 577-582.

Article #9 *Osteopathic manipulative treatment for postoperative pain*; Alexander S. Nicholas, DO; Sheryl Lynn Oleski, DO; JAOA • Supplement 3 • Vol 102 • No 9 • September 2002 • S5-S7.

Article #10 *Heart Failure: A Review of Osteopathic Treatment*; Michael Cooper, DO; American College of Osteopathic Family Physicians • Vol 3 • 2003 • 15-16.

Article #11 *Osteopathic Manipulative Medicine Considerations in Patients With Chronic Pain*; Michael L Kuchera, DO; JAOA • Supplement 4 • Vol 105 • No 9 • September 2005 • S29-S36.

Article #12 *Sinusitis in children: the importance of diagnosis and treatment*; Kayse M Shrum, DO; Stanley E Grogg, DO; Phillip Barton, MD; Harriet H Shaw, DO; Robin R Dyer, DO; JAOA • Supplement to May 2001 • Vol 101 • No 5 • S8-S13.

Article #13 *Diagnostic Touch Part 1.* Rollin E. Becker, AAOY 1963 • 32-40.

Article #14 *Andrew Taylor Still Memorial Lecture: Is it only manipulation?* Donald Siehl; JAOA Vol 101• No 10 • October 2001 • 630-4.

Article #15 *Use of Osteopathic Manipulative Treatment to Manage Compensated Trendelenburg Gait Caused by Sacroiliac Somatic Dysfunction.* Adam C. Gillis, DO; Randel L. Swanson, OMS III; Deanne Janora, MD; and Vankat Venkataraman, PhD; JAOA VOL 110 • No 2 • February 2010 • 81-6