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HISTORY OF MEDICINE: An Introduction to Native American Healing

Manal Elkarra, M.D. PGY III
Family Medicine

Healing can be defined by many as the curing of disease. As this definition encompasses one aspect of healing an often overlooked meaning of healing is “to make sound or whole”. Health care providers deal with healing and its complexities on a daily basis thus providing us with endless meaning to this simple yet complex word. In unfolding

the historical meaning of healing in the United States it is imperative to unveil the practice of healing, and thus medicine, amongst the Nation’s indigenous peoples. The various Native American tribes each have their own unique customs and traditions. Something that most tribes had in common was elderly tribe members that were trained in the healing arts. These individuals served as healers, herbalists, and spirit communicators. While the methods used for healing and the ceremonies varied depending on the tribe- spirituality and nature were integral parts of the healing process. The belief is that humanity, the spirits, animals and the earth are interconnected and that these factors can promote health or cause illness. Harmony between an individual and their surroundings is believed to be an integral part of one’s well-being, balance and inner peace. It is thought that diseases are more likely to invade the body of a person who is imbalanced, has negative thinking, or lives an unbalanced life. Only when physical and emotional harmony is attained can health be restored. The healing elder is a designated tribe member who can secure the help of the spirit world for the benefit of the sick individual as well as the whole tribe. He or she is seen as a spiritual leader and traditional healer. Although their role was different than the chief of the tribe, they held great power and had a complementary role in assuring the

well-being of the tribe. Below are some of the methods that are used for healing.

Herbs: Nature offered plants that were seen to possess a mind-body-spirit healing power. The herbs were used during ceremonies, prayers, chants and songs. When a specific herb was seen in a dream, it was considered a form of communication by which its spirit was guiding the healer. Plants were recognized as providing remedies for many ills. For example, Mullein was used as a cough suppressant, Buckwheat to control post-partum hemorrhage, and Wild Lettuce as a sedative.

Sweat lodge: Similar to a steam bath, a structure was built for a Purification Ceremony that was believed to be both cleansing and symbolic. For example, some tribes viewed the inside of the sweat lodge as representing the womb of Mother Earth. The darkness inside represented human ignorance, the hot stones on the ground as the coming of life, the fire below them as the undying light of the world, and the hissing steam from the water over the heated stones as the creative force of the universe being activated. The entrance of the structure faced east and this was to symbolize the direction and source of life and power. This was a place of spiritual refuge, mental and physical healing, and a place to repair damage done to the mind, body, and spirit.

Smudging: Before a person was to be healed, they first had to be cleansed of bad feelings, negative thoughts, bad spirits or negative energy. It is believed that burning certain herbs and fanning the smoke onto the body can accomplish this. The three herbs most commonly used are sage, cedar, and sweet grass. At times, the smoke was smudged on the skin and this was believed to purify the body and soul.

While the above examples might vary greatly from our definition of healing, it is important to remember that for thousands of years, Native Americans used these methods and many more to cure illness and treat injury. Many Native American medical contributions and cultural practices have been lost due to the laws that were imposed to curtail all aspects of their freedom. It was not until 1978 that the American Indian Religious Freedom Act was passed and allowed for tribes to freely carry out their healing ceremonies.

Native American healing ceremonies might not have been used to heal just one individual but rather to bring all people into harmony with themselves, their community and their environment. Surely utilizing this holistic approach can contribute to the well-being of our patients and help us realize the true potential of 'healing'.

FASCINATING CASE

Maryam Saidy M.D PGY III, Lawrence Harms M.D, Noel Victor M.D

A 79-year-old male presented to our facility with a few month history of vague abdominal pain, early satiety, weight loss and new edema of bilateral lower extremities. On examination, the patient's abdomen was quite distended and non-tympanic; his lower extremities had significant pitting edema to above the knees. CT scan (Fig 1,2) showed a large mass in the abdomen, displacing all organs peripherally, and metastatic lesions in the liver. Colonoscopy and EGD did not reveal a site of origin. The patient was taken to the OR for palliative removal of the mass. The mass was adherent to surrounding organs but appeared to be arising from a small pedicle off the greater curvature of the stomach (Fig3) with multiple large parasitizing feeding vessels. It was

removed in its entirety, including a wedge resection of the stomach. Postoperatively, the patient did very well. At discharge, all the patient's symptoms had resolved, including the lower extremity edema. Final pathology revealed a 30cm high grade gastrointestinal stromal tumor (GIST), containing 8 liters of fluid (mitotic rate >30/50 high power fields (HPF)), and positive for c-kit (CD117). The patient was started on adjuvant Imatinib. CT scan six-months later showed good responsiveness of the liver metastases to Imatinib, and now at 18 month follow-up he is doing very well.

Although GISTs make up only 3% of all gastric malignancies¹, the stomach is the most common site (60-70%) of all GIST². It most commonly presents later in life with symptoms of mass-effect, as seen in our patient. The tumor's origin is the Cell of Cajal³, an intestinal pacemaker cell. Histologically, GIST has both smooth muscle and neural elements⁴, and stains positive for c-kit (encodes a proto-oncogenic tyrosine-kinase (TK) receptor)³. This acts as a growth-factor receptor, stimulating cellular proliferation in tumor cells.

CT scan is currently the choice of imaging modality although magnetic resonance imaging (MRI) may add detail if needed. A biopsy is warranted for diagnosis only in situations where there is a high suspicion of lymphoma or widespread disease beyond the scope of surgery. Otherwise, biopsy is not recommended due to the high risk of rupture and dissemination of disease.

General surgical principles specific to GISTs are to obtain grossly negative margins and attempt not to rupture the capsule to avoid seeding. Although the purpose of surgery for our patient was palliation, we still adhered to these principles. Lymph node dissection is not needed as GISTs spread hematogenously.

The FDA approval of Imatinib (TK inhibitor) in 2001 revolutionized the treatment for patients with advanced GISTs. Current indications for use include adjuvant therapy in surgically positive margins, advanced/metastatic disease, high risk disease, and gross spillage intra-operatively. Fortunately our patient did very well with this adjuvant chemotherapy with both clinical and radiological response. Imatinib is currently not recommended after R0 resection of local disease⁵. Current research is being conducted as to its efficacy as a neoadjuvant therapy (The Radiation Therapy Oncology Group study RTOG-S0132).

Prognostic factors for GIST include mitotic rate and size. GIST are categorized as either low risk/benign (<5 mitotic figures per 10 HPFs and <5cm) or high risk/malignant. With enough time, almost all GISTs behave in a malignant fashion⁶. In one study, recurrence developed in 50% of cases with high-grade GIST after a R0 resection at 5-yr follow-up⁷. We look forward to long-term follow up of our patient.

In conclusion surgical goals for localized disease should be *en-bloc* resection, R0 resection and no gross spillage. Management of advanced GIST remains of dual modality: surgery and chemotherapy involving Imatinib.

FIGURE 1



FIGURE 2



FIGURE 3



5. Blay JY, Bonvalot S, et al. *Consensus meeting for the management of GISTs*. Ann Oncol 2005; 16(4):566-78.
6. Fletcher CD, Berman JJ, et al. *Diagnosis of GIST: a consensus approach*. Hum Pathol 2002; 33:459-65.
7. Conlon KC, Casper ES, et al. *Primary gastrointestinal sarcomas: analysis of prognostic variables*. Ann Surg Oncol 1995; 2:26.

HOW I DO IT: Large Volume Thoracentesis

Farbod Farmand, D.O

Teaching hospitalist

The patient's identity and planned procedure should be confirmed, and the side of the chest to be accessed defined by physical examination and analysis of the chest radiograph. The technique, risk/benefit, alternatives should be clarified in detail and informed consent signed and placed in chart. We often have a chest CT available prior to doing thoracentesis but at a minimum a lateral decubitus chest X-ray is needed to make sure the fluid is not loculated.

At ARMC, we often use a paracentesis tray for thoracentesis and the reason for this is ease of use and safety. The needle included in the paracentesis kit is blunt and this reduces the risk of pneumothorax, whereas the needle used in the thoracentesis tray is sharp and more prone to causing pneumothorax. Also, the catheter included in the paracentesis tray is more rigid and this prevents its collapse during the procedure.

For the procedure, the patient ought to be in an upright sitting position with arms resting on a bedside table. If available, thoracic ultrasound should be employed to verify the level of the pleural effusion and select a dependent portion that is above the level of the diaphragm through all phases of the

REFERENCES

1. Nilsson B, Bumming P, et al. *GIST: the incidence, prevalence, clinical course, and prognostication in the preimatinib mesylate era—a population-based study in western Sweden*. Cancer 2005; 1 (103):821.
2. Miettinen M, Sobin LH, et al. *GISTs of the stomach: a clinicopathologic, immunohistochemical, and molecular genetic study of 1765 cases with long-term follow-up*. Am J Surg Pathol 2005; 29:52.
3. Hirota S, Isozaki K, et al. *Gain-of-Function Mutations of c-kit in Human GISTs*. Science 1998; 279(5350):577-580.
4. Mazur MT, Clark HB. *Gastric stromal tumors Reappraisal of histogenesis*. Am J Surg Pathol 1983; 7(6):507-20.

respiratory cycle. If ultrasound is not utilized, the site of insertion should be at the level of the inferior angle of the scapula measured with the patient's arms in a relaxed position on his/her sides. The exact puncture site should be immediately above the superior aspect of a rib to avoid the neurovascular bundle and, when possible, 8 to 10 cm lateral to the spine.

A wide surface adjacent to the puncture site is sterilized with chlorhexidine or povidone-iodine solution, and sterile drapes are placed around the site. Lidocaine with epinephrine is administered at the skin and subcutaneous tissue, as well as to the superior aspect of the rib and the pleura (noted by the return of pleural fluid). This technique allows for anesthesia of the skin, rib periosteum, and parietal pleura.

A small incision should be made with a scalpel. A thoracentesis catheter with a 50 mL syringe attached via a stopcock is inserted, advanced to the rib, and then moved cephalad by 1 to 2 mm increments until the catheter can be advanced up and over the superior edge of the rib. As the needle is advanced, aspiration is attempted by applying constant negative pressure on the plunger of the syringe. When pleural fluid is aspirated, the plastic catheter is advanced over the needle into the pleural space and the needle withdrawn from the skin. A sample of 50 to 60 mL of pleural fluid is obtained for diagnostic testing. We usually inoculate the fluid in 2 blood culture bottles at the bedside as this has been shown to improve the yield of positive cultures in patients with parapneumonic effusions.

If large volume thoracentesis is desired, the tubing set may be connected to the catheter on one end and to a vacuum bottle on the other. Alternatively, fluid can be removed using a syringe and tubing connected via a

stopcock to a collection bag, rather than vacuum bottles, to prevent local application of negative pressure to an area of pleura and to allow removal of more exact volumes of pleural fluid. The amount of fluid we remove often depends on the particular situation and patient's underlying condition. However, as a general rule, we remove no more than 1.5 L of pleural fluid to avoid risk of pneumothorax and re-expansion pulmonary edema.

The maximum volume of fluid that can be safely removed is uncertain because the occurrence of re-expansion pulmonary edema and procedure-related pneumothorax do not clearly correlate with the onset of symptoms or the volume of fluid removed. A traditional method to avoid these complications has been to discontinue fluid removal at the onset of chest discomfort and/or cough (both of which correlate with development of more negative pleural pressures as fluid is removed) or when the total amount of fluid removed reaches 1.0 to 1.5 L.

After the desired volume of pleural fluid is removed, the catheter should be removed rapidly and puncture site covered simultaneously with petroleum gauze, 4x4 gauze pads and tape. A chest X-ray should be obtained to exclude pneumothorax.

RESIDENTS

**Please join us for the upcoming
Research Symposium for
Residents**

**Topics will range from: 'How to
formulate a research question to
tips to submitting your paper for
publication**

**Guest speakers and future dates
TBA**

RESEARCH PROJECTS AT ARMC

Are you interested in research? Are you a student, resident, staff, or faculty member at ARMC? Please contact the offices listed below to participate in any of the following ongoing studies. We thank all the faculty primary investigators of the following projects.

Emergency Medicine 909-580-6370

Alconcel, Franklin DO PGY II MacNeil, Colin DO PGY II	Estimated time of arrival of EMS for trauma alerts and activations.
Fenati, Greg DO PGY II Mamic, Marko DO PGY II	Link between allergies and psych disorder
Garabedian, Tigran PGY IV Ayvazian, Arbi PGY I	Manifestation of necrotizing fasciitis: a retrospective review of patients presenting to a San Bernardino County ED
Garabedian, Tigran DO PGY IV	Efficacy if 23.4% Nad on decreasing ICP
Horan, Jennifer H DO PGY II	Minor burn care in the Emergency Department
Johnson, Joshua DO PGY II Mittal, Geetanji DO PGY II	Appropriate Utilization of EMS Transport to the Emergency Department
Johnson, Joshua DO PGYII	1.What items on the ERAS application correlate most closely with matching to an AOA-approved Emergency Medicine residency 2. Survey: Patient preference regarding electronic communication
Jones, Kevin DO PGY IV Begnoche, Amy DO PGY III Widenski, Amber DO PGY II	A comparison of outcomes after intravenous thrombolysis with rt-PA in a San Bernardino County Hospital: a retrospective study
Kuhnen, Keasha, DO PGY IV Jones Kevin, DO PGY IV	Retrospective analysis of the correlation between subjective abdominal pain and objective findings on CT in pts, with blunt abdominal trauma
Mamic, Marko DO PGY II	Testicular Torsion Study
McAfee, Lisa DO PGY IV	Do patients expect or want to be tested for HIV?
O'Kelley, Timothy DO PGY III Mesisca, Mike DO	A ten-year retrospective review of survival outcomes in patients undergoing emergency thoracotomy at a level II trauma center
Orhard, Derek DO PGY III Rundio, Jeff DO PGY III	Survey: Training practices regarding CT use in the ED
Roten, Ryan DO PGY IV	1.Utility of CT in cervical spine clearance in the acutely intoxicated 2. Palliative Care: Emergency Dept Attitudes and Barriers
Seng, Sakona DO, PGY III Weingrow, Daniel DO	Retrospective Analysis of the Effect of Assembly Bill X35 on MediCal Patients Presenting to an Urban Emergency Department with Non-Traumatic Dental Complaints
Welch, Mary E DO PGY III Minera, Gabi DO PGY III	Progressive lifestyle changes of Emergency Medicine Residents

Family Medicine 909-580-6236

Ito, Bonnie LCSW	Health Literacy in English Speaking patients at McKee-FHC
Anand, Sumeet, DO PGY III Whitson, Denise FNP	Smoking Patients Contemplating Quitting Smoking
Elkarra, Manal, MD PGY III Vercio, Aimee MD	Overcome Barriers to Breastfeeding Initiation and Continuation
Hammes, Jillian, DO PGY III Brown, Joachim DO, MS	Chron's Disease, A Case Study
Khajehgian, Saro, DOPGY III Brown, Joachim DO, MS	Multiple Endocrine Neoplasia, Type II - A Case Study
Knotts, Nicole, MD PGY III Verico, Aimee MD	Understanding the Basics of EKG
Nyirenda, Ndeke, MD PGY III Ebert, Emily MD	Barriers Preventing Access to Primary Care in Underserved Population: Surveys of Patients & Staff at Two FHC's in San Bernardino County

Prasad, Aarthi, DO PGY III Brown, Joachim DO, MS	Diabetes, Hypertension & Cholesterol Education Module
Ramirez, Milton, MD PGY III Avagimov, Ruben MD	Chronic Thrombocytopenia in a Patient Treated with Long Term MTX and Hydrochloroquine
Thomas, Scott, DO PGY III Brown, Joachim DO, MS	Apical Hnypertrophic Cardiomyopathy - A Case Study
Tomkins, Michael, DO PGY III Welch, Patrick, DO Small, Deborah MD	Treating Low Back Pain with Acyclovir
Truong, My-Linh, DO PGY III Brown, Joachim DO, MS	Sarcidosis - A Case Report and Reviews of the Literature

Internal Medicine 909-580-6266

Khackekian, Arsineh DO PGYII Nowroozi, Michelle DOPGY II	The timely usage of Neulasta/Neupogen in prevention of Febrile Neutropenia, in decreasing rate of hospital admissions and in decreasing length of hospital stays for patients receiving chemotherapy.
Reynolds, Kyle DO PGY III	Is there a correlation between admission CHADS2 Score in those patients presenting at ARMC who presented as a "code stroke" and outcome as measured by the NIH Stroke Scale
Hadi, Molood, DO PGY III	Vancomycin sensitivity in MRSA strains causing hospital acquired pneumonia
Mehta, Sapna DO PGY III	An observational study of intraosseous vascular access compared to central venous catheters in the hospitalized patients
Vinn, Vanessa DO PGY III Sorto, Fernando DO PGY III	Septicemia in catheter related infections in dialysis patients at ARMC

Neurosurgery 909-580-1366

Huynh, Katie DO PGY IV Lowe, Andrew PharmD Le, Tina PharmD Dan Miulli, DO	Does dihydropyridine calcium channel blockers lower serum sodium: amlodipine vs nifedipine on sodium levels.
Siddiqi, Javed MD Ramakrishnan, Vivek DO PGY IV	Anti-Epileptic Prophylaxis in Traumatic Brain Injury (TBI) Patients undergoing Craniotomy vs Decompressive Craniectomy Operations
Siddiqi, Javed MD Minasian, Tanya DO PGY III	An analysis of neuron specific enolase (NSE) in traumatic brain injury (TBI) patients

Ophthalmology

Rudometkin, Nathan MD	Investigation of Retinal Traction Associated with Lung Cancer
Tokuhara, Keith MD Storkersen, Kris MD	Role of Sub-Conjunctival Bevacizumab in Post Pterygium Excision Management

Pharmacy 909-580-0016

Lowe, Andrew PharmD	Effect of Ketorolac Tromethamine (Toradol) on Pain Perception and Narcotic Use
Hiroshige, C. PharmD Love, Jessica Pharmacy	Recognizing and Evaluating Potential Causes of Hypoglycemic Events in Hospitalized Patients
Le, Tina PharmD Resident	Efficacy of High Dose Nutritional Vitamin D3 in Decreasing PTH Levels in Hemodialysis Patients as Compared With Paricalcitol
Ng, Steven PharmD resident	Anti-Emetic Effects of Dronabinol in Chemotherapy Induced Nausea and Vomiting

Surgery 909-580-3362

Culhane, John MD Surgery	Amount of Residual Intra-gastric Feeding Formula in ICU Patients Undergoing PEG Placement or Tracheostomy Placement
Culhane, John MD Surgery	Retrospective Review of Muscle Relaxants as Adjunct to Standard Pain Management in Surgical Patients
Joe, Victor MD Surgery Sadia Khan, DO PGY IV	Does the Gail Model Help Stratify Women with Breast Imaging Reporting and Data System (BI-RADS) Classification 3 Lesions to Biopsy Rather than Short Term Follow Up?
Davis, Vivian Joseph DO, Woods, Bill	Transcutaneous Oxygen (TcPO2) Change Following Hyperbaric Oxygen Therapy
Joe, Victor MD Wong, David T MD	A Randomized Clinical Trial of Restrictive vs. Traditional Blood Transfusion Practices in Burn Patients
Joe, Victor MD	Commercial Burn Wound Dressings: Evidence and Experience – A Retrospective Analysis of the Use of Commercial Wound Dressings in the Treatment of Superficial

	Partial Thickness Burn Wounds
Wong, David T MD Raja Gnanadev Student	Intrathoracic Pressure of Patients Measured Through Chest Tubes
Dehal, Ahmed MD PGY II	Racial disparity in clinical presentation, treatment, and outcome among women with breast cancer: Analysis of National inpatient sample database
Dehal, Ahmed MD PGY II	Comorbidity and outcome after surgery among woman with breast cancer: Analysis of national inpatient sample database
Dehal, Ahmed MD PGY II	Simultaneous bilateral laparoscopic totally extraperitoneal inguinal hernia repair without mesh fixation: 10 years single surgeon experience
Dehal, Ahmed MD PGY II	Risk factors for neck hematoma after thyroid surgery: Analysis of national inpatient sample database
Dehal, Ahmed MD PGY II	Surgeon volume and neck hematoma after thyroid surgery: Analysis of national inpatient sample database
Dehal, Ahmed MD PGY II	Ten years trend analysis of breast cancer surgery: National inpatient sample database
Dehal, Ahmed MD PGY II	Screening colonoscopy and mortality from colon cancer: How much cancer are we preventing?
Khan, Sadia DO PGY IV; Quigley, Jeff DO PGY II	Birads Three Gail Model for early breast cancer detection.
Quigley, Jeff DO PGY II; Dr. Joe MD	ICU vs. Burn Unity-Normal Flora vs. Regular ICU
Quigley, Jeff DO PGY II; DR. Davis, DO	Osteopathic evaluation of vagal stimulation in cardiac dysfunction
Quigley, Jeff DO PGY II; Dr. Joe MD	Patterns of normal flora, colonization and infection in burn unit patients.
Lin, Erin DO PGY IV	Compare the complication rate of wound infection between tram flaps and tissue extender
Lin, Erin DO PGY IV	Case report: Trichobezoar
Gelvezon, Nani DO PGY IV; Dr. Hussain MD	Pancreatic head sparing duodenectomy in a trauma setting
Gelvezon, Nani DO PGY IV	Clinical case: brown-sequared plus syndrome in a trauma
Dr.Davis DO	Incidence of vertebral artery injury with traumatic cervical spine subluxations
McCague, Andrew DO PGY V; Dr.Navarro MD, Dr. Kong MD	Recurrent left chest mass: a case report
McCague, Andrew DO PGY V	Empyema neccessitans presenting as transient chest mass
McCague, Andrew DO PGY V	Osteopathic manipulation on trauma patients
McCague, Andrew DO PGY V	Percutaneous dilational tracheostomies in the emergent setting
Youngjin, Kim, MD PGY II	Acute cholecystitis and cholesterol level
Tumbaga, Gloria MD PGY III	SILS cholecystectomy experience
Narayanan, Ragavan MD PGY III Tumbaga, Gloria MD PGY III	Randomized trial of outpatient follow up with person or via phone
Tumbaga, Gloria MD PGY III	Posterior mesh seroma with goretex
Narayanan, Ragavan MD PGY III Tumbaga, Gloria MD PGY III	Safety of outpatient cholecystectomy
Tang, Taylor MD PGY IV	A case report: Laparoscopic common bile duct exploration in 2 nd trimester pregnancy
Tang, Taylor MD PGY IV Hussain, Farab MD	Bi-absorbable staple line reinforcement for colorectal leaks
Traditional Year 909-580-1369	
Crouch, Andrew DO PGY I	A hospital based study: comparison of size, severity and prognosis of hemorrhagic

Miulli, Dan DO	stroke in patients presenting with postive history of methamphetamine use
Custodia, Jason DO PGY I	Stroke as a causative event in the development of PTSD
Miulli, Dan DO	
Miulli, Dan DO	Developing a comprehensive stroke system of care
Dahlin, Robert DO PGY I	
Miulli, Dan DO	Determine best treatment options for patients with degenerative lumbar spine disease
Hakopian, David DO PGY I	
Carson, Tyler DO PGY I	
Miulli, Dan DO	Improving end of life care and choices in Spanish only speaking patients
Jones, Sarah DO PGY I	
Miulli, Dan DO	Obtaining primary care providers and follow up for indigent patients with stroke
Wood, Richard DO PGY I	
Persianinova, Maria DO PGY I	Blood pressure control to prevent incident of stroke in perioperative patients that are going under general anesthesia
Miulli, Dan DO	
Smith, R. Patrick DO PGY I	Developing a handoff tool for stroke patients: Can a simple tool help improve information exchange?
Miulli, Dan DO	
Vyas, Kunal, DO PGY I	Incidence of Tersons Syndrome in patients with non-aneurysmal hemorrhagic stroke
Miulli, Dan DO	

Transitional Year 909-580-3367

Patel, Amy MD PGY I	Resident Survey - Use of Electronic Devices in the Hospital for Patient Care.
Dr. Melendez	

Womans Health 909-580-3470

Garcia, Sarah DO PGY IV	Comparing the Rates of Detection / Diagnosis of Gestational and Overt Diabetes Mellitus Using Old vs New Screening Guidelines
Valenzuela, G. MD	
Roloff, Kristina DO	Nutrition in the Obese Gravid Patient: Is Improved Nutrition a Factor in Preventing Fetal Macrosomia?
Valenzuela, G MD	
Valenzuela, G MD	Correlatiojn of Lecithin-Sphingomyelin ratiom>2 with amniotic fluid lamellar body count> 50,000 ot determin fetal lung maturity
Carter, Michael DO PGY III	
Valenzeula, G. MD	External scar characteristics as an indicator for intra-abdominal adhesions at repeat Cesarean section
Roloff, Kristy DO	
McNally, Lauryn DO PGY IV	
Valenzeula, G. MD	Interval From Skin Incision to Delivery of the Newborn: The Effect of Body Mass Index
Valenzuela, G MD	
Valenzuela, G MD	Tubal Sterilization Disparity in Ethnic Groups
Valenzuela, G MD	Did ACOG 2012 change of guidelines have an effect upon rates of trial of labor after cesarean section?
Valenzuela, G MD	
Valenzuela, G MD	Changes in the Incidence of Severe Shoulder Dystocia
Valenzuela, G MD	A review of our experience at ARMC of how accurate the fetal fibronectin test has been in the detection of preterm labor

There are many ways for ARMC residents to become involved in research. Here is a list of the current ongoing studies at Western University. If you are interested in finding out more on a particular topic please contact the GME Research Coordinator, **Teckah Lawrence**, for more information. Research is organized by faculty member.

Al-Tikriti, Mohammed

The morphological and histochemical effects of administration of cisplatin on the GIT of the least shrew.

Barnes, Edward

Effects of Patient engagement and Dietary Education on glycemic control in Diabetic patients.

Benninger, Brion

Finger probe ultrasonography - anatomy and clinical benefits

Unhappy triad - knee and elbow terminology controversy

Definition, morphology, and classification of subcondylar fractures

Bi, Xiaoning

Angelman-autism project: protein synthesis, degradation, and actin polymerization in spine plasticity

Behavior and epigenetic in mouse models of imprinting disorders

Neurodegeneration in Niemann-Pick type C disease

Epilepsy, excitotoxicity, and gene susceptibility

Brar, Rajivinder

Oxidative metabolism of linoleic acid derivatives and the enzymes involved in that process.

Chew, Amy

Collaborative pilot work for submission of an NSF proposal to investigate climate and environmental change and their effects on the early Eocene Willwood mammal fauna

Collaborative analysis and description of the species-area bias on different methods of rarefaction using GIS, with K. Oheim
Collaborative description of Bridgerian *Thysbemyx* (middle Eocene rodents) with D. Anderson, St. Norbert College.

Curation and description of a late Eocene rhino bone bed from Sespe Formation

Review of Paleocene-Eocene Thermal Maximum for Grizmek's Extinction volume.

Darmani, Nissar A.

Mechanisms of antiemetic drugs including cannabinoids.

Chemotherapy-induced vomiting.

Mechanisms of serotonergic drugs such as antidepressants, hallucinogens.

Covasa, Mihai

The role of NMDA receptors on control of food intake.

Changes in sensitivity to satiation signals in obesity and diabetes.

The role of gut microbiota in control of food intake and regulation of body weight

Developmental effects of drugs of abuse on the newborn.

Serotonergic mechanisms of cocaine's actions.

Mode of action of antidepressant drugs.

Adaptive mechanisms of serotonergic 5-HT₂ receptor functions.

The role of delta-9 -THC and synthetic cannabinoids on

chemotherapy- and radiotherapy-induced vomiting.

Role of 5-HT₃-, Dopamine D_{2/3}-, Lekotriene CysLT₁- and NK₁-receptors in emesis and application of their antagonists as antiemetics.

The role of osteopathic manipulative medicine on the blood levels of endogenous cannabinoid-like compounds and other pain markers in patients with back pain.

Ethell, Douglas

Evaluation of amyloid-beta specific CD4+ T cell responses in Alzheimer's

A Physiological Role for the Alzheimer's Peptide Amyloid-beta in Angiogenesis

Fragile X Subject-derived iPS Cells as a Source for Human Neurons with Clinically-relevant FMR1 Mutations.

Fraix, Marcel

Effectiveness of Osteopathic Manipulative Treatment (OMT) and Vestibular Rehabilitation Therapy (VRT) alone or in combination on Balance and Visual Function in Individuals with Vertigo and Somatic Dysfunction

Henriksen, Steven

VTA GABA neurons: Role in Neocortical Activation and Neurological Disfunction

Impairment of memory consolidation by galanin correlates with in vivo inhibition of both LTP and CREB phosphorylation

Methamphetamine and Lentivirus Interactions: Reciprocal Enhancement of CNS Disease

Strain-Specific Viral Distribution and Neuropathology of Feline Immunodeficiency Virus

Hovorka, Michelle

Histological examination of the presence of sensory neurons (ganglia) along the C1 spinal nerve
Biliary tree changes with age and disease

Hu, Jin-Shan

Multidimensional NMR methods and their application in structural biology.

Structures and functions of the DNA repair and tumor suppressor proteins.

Molecular mechanism of the RecQ helicases function in DNA metabolism and in maintaining genome integrity.

Issar, Manish

Quantitative analysis of 13-HODE and 13-Oxo-ODE in human placenta, shrew liver, brain and heart by HPLC.

Characterization of 13-HODE dehydrogenase in the liver of shrew and human placenta.

Quantitation of 13-HODE and 13-Oxo-ODE in the shrew brain after treatment with antineoplastic agents. (not initiated but under planning).

Kandpal, Raj

Molecular profiling of retina in a mouse model of diabetic retinopathy: Understanding molecular basis of disease etiology and candidate drugs.

Receptor tyrosine kinases in breast carcinoma cells: Implications for diagnostics and therapeutics.

Glen Kisby

Role of Environmental Factors in Residents of Southern Oregon with ALS.

Determine if environmental genotoxins trigger underlying mechanisms of cancer in amyotrophic lateral sclerosis (ALS) and Alzheimer's disease (AD).

Examining the effect of the viral regulatory protein P13 on neuroinflammation in animal models of neurodegenerative disease.

Role of pesticide-induced oxidative stress and DNA damage in agricultural workers.

Development of a community-based health and wellness program at COMP-NW.

Examining epigenetic changes (i.e. histone modifications) in the brain of individuals with Alzheimer's disease.

Kraatz, Brian

A Geometric Morphometric Analysis of Skull evolution in the Lagomorpha (rabbits, hares, and pikas)

Faunal Evolution of the Arabian Peninsula as from Late Miocene

Fossils from the United Arab Emirates

Paleontological Exploration of Paleogene Faunas of Oman

The Evolution of the Locomotor System of Lagomorpha

Modeling the Stability of Paleocommunities Throughout Earth's History

Malecki, Marek

Molecular mechanisms of osteopathic manipulative medicine.

Environmental pollution and epigenetics.

Novel methods of gene sequencing.

John Mata

Synergism of natural products with 5-alpha reductase inhibitors to inhibit growth of prostate cancer cells in vitro.

CT guided third molar ablation in swine.

Martin, James

Saw Palmetto effects on glycemic control in Type II Diabetes.

2nd to 4th digit ratios relationship to Type II Diabetes and

Hypertension

Directional and fluctuating asymmetry: relationship to human chronic diseases

Mehta, Rucha

Inspire Diabetes trial: A multicenter investigator initiated trial to evaluate the efficacy of intensive insulin regimen as a primary treatment of new onset Type 2 Diabetes.

AADE Demonstration Project: This is a diabetes education project aimed at evaluating the efficacy of diabetes education in empowerment of the patient and thereby improving outcomes.

Merbs, William

Canine Thoracic Splanchnic Nerves and Their Comparison to Those of the Homo Sapiens

Clinical Anatomy of the Thoracic Splanchnic Nerves

Pain Pathways of the Pancreas

Mitsouras, Katherine

Analysis of tissue-specific gene expression of an endangered felid, the snow leopard, using transcriptome sequencing.

Analysis of the alternative transcriptome of an endangered felid, the snow leopard

Development of novel methods to annotate gene expression data

Patel, Nishita

increased risk of tuberculosis in Diabetic patients with low glutathione level.

Pumerantz, Andrew

PEGylated liposomal vancomycin (PLV) as a novel drug delivery system to improve patient-centric outcomes with treatment of MRSA pneumonia.

Innovations in health care delivery with integrated practice units to improve patient-centric outcomes.

Expanding integrated health care in China and other developing countries where chronic diseases such as diabetes are emerging on a large scale.

Saviola, Beatrice

Antimycobacterial action of engineered peptides.

PhoP binding and regulation of the *lipF* promoter from *Mycobacterium tuberculosis*.

Role of acidity in gene regulation during *in vivo* infection by *Mycobacterium tuberculosis*.

Seffinger, Michael

Osteopathic manipulation vs vestibular rehabilitation training for patients with vertigo

Osteopathic manipulation vs sham for patients with chronic headaches

Osteopathic manipulation vs sham for patients with asthma

Effectiveness of students performing osteopathic manipulation for patients with musculoskeletal pain

Evaluation of an intensive osteopathic manipulation summer course for entering osteopathic medical students

Venketaraman, Vishwanath

Host immune responses against *Mycobacterium tuberculosis* and HIV infection

Characterization of the beneficial effects of glutathione in enhancing the functions of host immune cells against

Mycobacterium tuberculosis infection in both healthy individuals and individuals with HIV infection

Elucidation of the underlying causes for increased susceptibility to tuberculosis in individuals with type II diabetes, chronic smokers and in ageing population

Determine the efficacy of vancomycin formulations against MRSA infection by performing *in vitro* and *in vivo* studies

Wagner, Ed

How Cannabinoids regulate the hypothalamic feeding circuitry to affect changes in feeding behavior and energy homeostasis in male and female subjects, and how gonadal steroids modulate this interaction.

Wedel, Mathew

Evolution of the respiratory system in dinosaurs.

Biological challenges of long necks

Biological limits to large body size in animals, particularly whales and dinosaurs.

Early Cretaceous dinosaur faunas of North America.

Wedel, Vicki

Determining season at death using dental cementum increments

Patterns of bone remodeling among enslaved and freed historical blacks

Detecting a historical epidemic from cemetery samples

Wong, Stanley

Effect of adipose tissue-derived stem cells on skin proliferation and wound healing

Zhong, Li

Profiling autoantibodies for early detection of esophageal squamous cell carcinoma

Validation study of select biomarkers for early detection of esophageal squamous cell

Risk Assessment of Mesothelioma Development Using Autoantibody Signature

SPOTLIGHT ON RESEARCH OB/GYN DEPT

Written by Sarah Garcia D.O PGY IV

Our senior residents in the Obstetrics and Gynecology program this year are hard at work on completing their research projects to be presented at the American College of Osteopathic Obstetricians and Gynecologists conference in April 2013. This is a highlight of several abstracts that will be presented.

Dr. Michael Carter's project is *Correlation of Amniotic Fluid Lamellar Body Count with Lecithin-Sphingomyelin Ratio and Amniostat Phosphatidylglycerol*. The study objective is to determine whether there is a direct correlation between amniotic fluid lamellar body count to a lecithin-sphingomyelin ratio and amniostat test. The hypothesis is that amniotic fluid lamellar body count greater than 50,000 has a direct correlation to a lecithin-sphingomyelin ratio greater than 2.0 and a positive amniostat. The background behind his research is based on the availability and correlation of fetal lung maturity tests. Neonatal respiratory distress syndrome remains one of the most common causes of morbidity and mortality associated with premature birth. The three main readily available tests to assess fetal lung maturity are lecithin/sphingomyelin (L:S) ratio, phosphatidylglycerol (PG) or amniostat, fluorescence polarization (TDx-FLM) and lamellar body count. L:S is the oldest and is considered a sensitive means to assess fetal lung maturity. However, it is difficult to perform and interpret. Great care must be taken in the sampling and handling of the specimen to not alter the results and because of this it is an expensive test to perform. The second test is the amniostat (PG) and its downfall is the levels in amniotic fluid tend to rise several weeks after the rise in lecithin and often will not correlate with the L:S

Please applaud Dr. Ahmed Dehal, for his recent submissions to the International Breast Cancer Symposium in San Francisco. He led a poster discussion and presentation on his article titled 'Racial disparities in clinical presentation, treatment and outcome of women with breast cancer: analysis of national inpatient sample database' and had a 2nd abstract accepted for poster presentation.
CONGRATULATIONS!

ratio. This makes the test less accurate than the L:S ratio. The lamellar body count is quick and inexpensive and is more accurate than the L:S ratio in predicting neonatal respiratory distress syndrome. A bonus is that meconium stained fluid does not affect the results. This project is being done by retrospectively collecting the results of all amniotic fluid samples drawn on labor and delivery at Arrowhead Regional Medical Center from 2010 to current. The amniostat, L:S ratio, and lamellar body count were performed on each sample and the results will be reviewed and compared to the neonatal outcomes. He will then determine if there is a direct correlation between L:S ratio greater than 2, a positive amniostat and a lamellar body count greater than 50,000. Lastly, he will look at which test has a higher predictive value of neonatal admission to the NICU for respiratory distress syndrome.

Dr. Lauryn McNally's research is *External Scar Characteristics as an Indicator for Intra-Abdominal Adhesions at Repeat Cesarean Section*. In order to determine if the visible characteristics of an abdominal scar can predict the presence and severity of intra-abdominal adhesions at repeat cesarean section in our patient population with a focus on body mass index (BMI) and adhesion formation. Currently there is no reliable way to predict intra-abdominal adhesion formation before performing a laparotomy, yet as Tulandi (Tulandi T. Agdi M. Zarei A. Miner I., Sikirica V. Adhesion development and morbidity after repeat cesarean delivery. Am J Obstet Gynecol. 2009; 201:56.e1-56.e6) demonstrated adhesions delay time to delivery of a baby, increase operative time and rates of infection, and are linked with increased morbidity for the patient. In this study, she will hypothesize that visible characteristics of an abdominal scar can predict the presence and severity of intra-abdominal adhesion at repeat Cesarean section regardless of ethnicity or BMI. This is a prospective study of patients undergoing

repeat Cesarean delivery. Visible characteristics of the abdominal scar including width, thickness, and pigmentation of the scar will be assessed prior to surgery and assigned a score. This will be compared to the presence of intra-abdominal adhesions, and their severity (no adhesions, filmy adhesions, thick, band-like adhesions). Her hypothesis is that the presence and severity of intra-abdominal adhesions can be predicted by physical appearance of scar.

Lastly, my project is *Comparing the Rates of Detection/Diagnosis of Gestational and Overt Diabetes Mellitus Using the Old Verses New Screening Guidelines*. Which will include determining whether it is cost effective to perform a hemoglobin A1c test on every pregnant patient as a screening test. New screening guidelines for gestational diabetes and overt diabetes were announced in Feb. 2011 and the levels that are considered diagnostic have decreased and now include a hemoglobin A1c level. With this I hypothesize that there will be an increase in the detection of gestational diabetes mellitus using the new guidelines compared to the old. This will be a retrospective study involving the review of medical records of patients admitted to labor and delivery at Arrowhead Regional Medical Center for delivery. I will obtain the percentages of abnormal values with the two methods, compare the percentage of pregnant women diagnosed with both guidelines, and determine if this correlates with the percentage of abnormal hemoglobin A1c results. The expected results from a literature search suggest that the new criteria proposed would diagnose 18 percent of all women in pregnancy as having gestational diabetes mellitus, which is double the proportion of women diagnosed with the prior guidelines.

Innovations in Medicine: Dynamic Spine Stabilization

Kamran Parsa, D.O Neurosurgery PGY V

In the world of spine surgery, there seems to be a new innovation every other day. High reimbursement rates to instrumentation companies; baby boomers coming of age with demands of high quality of life; and ever increasing surgical approaches to treating spine conditions are only a few of the incentives for new innovations. Dynamic spine stabilization is one of these new innovations.

Low back pain affects 80% of all Americans sometime in their lives. However, only a very limited percentage of these will ever meet indications for surgical intervention. One of the procedures to treat low back pain and radiculopathy with certain other criteria includes lumbar fusion. Lumbar fusion is a process where titanium screws and rods are placed into the posterior spine in addition to placing autograft/allograft bone material. The idea behind this process is that the instrumentation and the fusion mass from the bone material will eventually stabilize the spine forming a rigid structure. Rigidity prevents micro-motion from degenerated intervertebral discs and posterior joint complexes that are pain generators in back pain.

There is one well-known problem to lumbar fusion however; adjacent level disease. Multiple studies have indicated that the fixed rigidity created by lumbar fusion places extra stress on the adjacent levels, above and below, the fusion complex. This stress leads to advanced rate of degeneration, therefore, possibly requiring more instrumentation and fusion procedures 5-10 years later. This is where the idea of dynamic stabilization comes in.

Dynamic stabilization is really an innovation in the rod system of current practice. The rods are designed in such a way that they are rigid for the time required for the body to form its own fusion mass. After this time has passed, the rods lose some of their tension and stiffness, thus allowing mild flexion and extension to occur. Theoretically, this relieves the stress applied onto the adjacent levels and therefore helps decrease adjacent level disease.

In theory, dynamic stabilization systems offer a great solution to the problem of adjacent level disease; however there are limitations as well. The ideal patient's bone fuses to 80% its original strength by 6 months and achieves 100% by approximately one year. The dynamic stabilization system is advertised to lose its rigidity at approximately a year. Many of the patients requiring fusion in the first place are not ideal patients. Age, genetics, and acquired systemic problems of this patient population all retard the fusion rates indicated above. The rods in dynamic stabilization systems do not account for this. In fact, some early results have shown instances of higher instrumentation failure rates compared to the standard rods used. Also, with this technology being in its infancy, there are few long-term data to support its efficacy in adjacent level disease.

In conclusion, dynamic stabilization systems offer an innovative idea to solve the problem of adjacent level disease in lumbar fusion. However, there are significant concerns that are not addressed; the lack of long-term data challenges the very principle that the system promises to solve. Overall, this system may not be the perfect answer; but one should commend the developers, as this is the exact thinking and innovation that will be required to eventually design the perfect solution.

AT YOUR LIBRARY

This is the 2nd article of a series of our [Online Library Resources](#).

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- [The IntraNet](#) can be accessed by going to [ARMC Tools](#), then click on [ARMC IntraNet](#).
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I will continue to highlight the other online resources and alert you to the Mobile App applications. Library staff will be happy to assist you in creating a Username & Password or in downloading the Apps.

Please join the JARMC in congratulating the ARMC residents noted below for their winning submissions in this year's ARMC Annual Research Day, held June 1, 2012.

First Place: (\$ 1000.00 Prize) Lena Hong Tran, Pharm D
EFFECT OF PHARMACIST INTERVENTION ON PATIENT EXPERIENCE

Second Place: (\$ 700.00 Prize) Tanya Minasian, DO & Yoav Ritter, DO
USE OF A TUBULAR RETRACTOR SYSTEM DURING AN AWAKE CRANIOTOMY FOR RESECTION OF HIGH GRADE NEOPLASM.

Third Place: (\$ 500.00 prize) Ahmed Dehal, MD
RACIAL DISPARITIES IN CLINICAL PRESENTATION, TREATMENT, AND OUTCOME OF WOMEN WITH BREAST CANCER: ANALYSIS OF NATIONAL INPATIENT SAMPLE DATABASE

Third Place: (\$ 500.00 prize) Audra Budde, DO
EFFECT ON PATIENT SATISFACTION OF OSTEOPATHIC MANIPULATION THERAPY FOR MUSCULOSKELETAL COMPLAINTS IN THE PRIMARY CARE SETTING: A SURVEY BASED STUDY

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The schedules for the following issues are:

December 2012

History of Medicine	ER
How I do it	Psychiatry
Spotlight on Research	Family Medicine
Case of the Month	Internal Medicine
Innovations in Medicine	OB/GYN

March 2013

History of Medicine	Surgery
How I do it	Neurosurgery
Spotlight on Research	ER
Case of the Month	Psychiatry
Innovations in Medicine	Family Medicine

Important Dates

Dates to remember...

- ✚ Deadline for submissions to the next issue Journal of ARMC: **November 30th, 2012**
- ✚ Upcoming dates for Management and Leadership Experience for Residents:
December 12th, 2012
February 20th, 2013
April 24th, 2013
May 22nd, 2013