

OAKLAND UNIVERSITY WILLIAM BEAUMONT SCHOOL OF MEDICINE

PUBLICATION LIST

January - March 2018

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Abuodeh Y, Naghavi AO, Echevarria M, DeMarco M, Tonner B, Feygelman V, **Stevens CW**, Perez BA and Dilling TJ (2018). "Quantitatively excessive normal tissue toxicity and poor target coverage in postoperative lung cancer radiotherapy meta-analysis." *Clinical Lung Cancer* 19(1): e123-e130.

[Full-Text](#)

Department of Radiation Oncology

Background: A previous meta-analysis (MA) found postoperative radiotherapy (PORT) in lung cancer patients to be detrimental in N0/N1 patients and equivocal in the N2 setting. We hypothesized that treatment plans generated using MA protocols had worse dosimetric outcomes compared to modern plans. Patients and Methods: We retrieved plans for 13 patients who received PORT with modern planning. A plan was recreated for each patient using the 8 protocols included in MA. Dosimetric values were then compared between the modern and simulated MA plans. Results: A total of 104 MA plans were generated. Median prescribed dose was 50.4 (range, 50-60) Gy in the modern plans and 53.2 (30-60) Gy in the MA protocols. Median planning volume coverage was 96% (93%-100%) in the modern plans, versus 58% (0%-100%) in the MA plans (P < .001). Internal target volume coverage was 100% (99%-100%) versus 65% (0%-100%), respectively (P < .001). Organs at risk received the following doses: spinal cord maximum dose, 36.8 (4.6-50.4) Gy versus 46.8 (2.9-74.0) Gy (P < .001); esophageal mean dose, 22.9 (5.5-35) Gy versus 30.5 (11.1-52.5) Gy (P = .003); heart V30 (percentage of volume of an organ receiving at least a dose of 30 Gy), 16% (0%-45%) versus 35% (0%-79%) (P = .047); mean lung dose, 12.4 (3.4-24.3) Gy versus 14.8 (4.1-27.4) Gy (P = .008); and lung V20, 18% (4%-34%) versus 25% (8%-67%) (P = .023). Conclusion: We quantitatively confirm the inferiority of the techniques used in the PORT MA. Our analysis showed a lower therapeutic ratio in the MA plans, which may explain the poor outcomes in the MA. The findings of the MA are not relevant in the era of modern treatment planning.

Adhikari A, Hafeez A and **Halalau A** (2018). "Cardiac dedifferentiated liposarcoma requiring a mitral valve replacement complicated by severe paravalvular leak: A rare case report with literature review." *Case Reports in Cardiology* 2018: 2506368.

[Full-Text](#)

Department of Internal Medicine

Cardiac sarcomas have a high infiltrative and metastatic potential and are often associated with poor prognosis. These tumors are often identified incidentally by thoracic and cardiac imaging. However, when symptomatic, their presentation can differ based on the localized structural effects on the endocardium, myocardium, pericardium, and valves as well as on dynamic effects on the cardiac function. We report a case of a 61-year-old female who presented to the emergency room with recurrent chest pain, fatigue, and chronic anemia. A transthoracic echocardiogram demonstrated a left atrial mass attached to the septal wall and anterior leaflet of the mitral valve. The mass was further characterized by a transesophageal echocardiogram and cardiac MRI. The patient underwent a resection of the left atrial mass with mitral valve replacement (MVR) and atrial septal defect repair. MVR was later complicated by paravalvular leak leading to acute congestive heart failure. Tissue immune histology was consistent with dedifferentiated liposarcoma. Cardiac dedifferentiated liposarcoma is extremely rare with only few cases reported in literature. We attempt to review the clinical features, diagnosis, and management of cardiac sarcoma with great emphasis.

Al-Hadidi A, Nassar I, Amro W, Shaltaf A and **Novotny N** (2018). "Decision-making in pediatric persistent Mullerian duct syndrome." Annals of Pediatric Surgery 14(1): 24-26.

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Department of Surgery

We are reporting a case of an 18-month old male who presented with bilateral cryptorchidism. The patient underwent an explorative laparoscopy in which two gonads were identified in close proximity to the uterus and fallopian tubes. Biopsy of the gonads confirmed testicular tissue. Genetic analysis demonstrated a 46, XY male. Male external genitalia were appropriate for age with no evidence of female structures. Persistent Mullerian duct syndrome is extremely rare, with approximately 260 cases reported in the literature. Best practice for the extent of surgical management is still evolving as we gather data on long-term outcomes. © 2018 Annals of Pediatric Surgery.

Anees AM, Yang SK and Cappell MS (2018). "Case report of successful medical management of progressive gastric band penetration-to-perforation after band insertion at bariatric surgery: Documentation by 12 serial EGDs during 50 months of observation." Digestive Diseases and Sciences 63(1): 257-263.

[Full Text](#)

OUWB Medical Student Author

Department of Internal Medicine

Gastric band (GB) surgery is a relatively popular form of bariatric surgery for morbid obesity, in which a flexible band is wrapped around and constricts the proximal stomach, just below the gastroesophageal junction, to promote weight loss via reduced gastric capacity and enhanced early satiety [1]. Gastric erosion is a major complication of GB surgery, in which the GB erodes through the serosal surface of the stomach. Little is known about endoscopic progression of GB erosion because patients usually undergo only one diagnostic esophagogastroduodenoscopy (EGD). A novel case is reported of gradual penetration-to-perforation-to-passage-per-rectum of a non-adjustable GB, documented by 12 gastroenterology office visits and 12 serial EGDs during 50 months of medical observation. This progression is remarkable for only mild symptoms, successful non-surgical management of slow gastric transection, and spontaneous re-anastomosis after gastric transection without endoscopically evident gastric injury.

Appleford C, **Donev K** and **Qu ZH** (2018). "Metastatic anaplastic oligodendroglioma to the scapula--A rare but real diagnostic challenge." American Journal of Clinical Pathology 149: S117-S117.

[Full Text](#)

Department of Pathology

Extracranial metastasis of an oligodendroglioma is exceedingly rare. We report a case of a metastatic anaplastic oligodendroglioma to the scapula. The patient was a 44-year-old man who was found to have a right frontal lobe mass during the work-up for episodes of seizures. Biopsy of the mass revealed an anaplastic oligodendroglioma with 1p/19q codeletion. The mass was resected and the patient was treated with temozolomide. Subsequently, the patient had three intracranial recurrences, three, five, and six years after the original resection. Twelve years after his initial diagnosis of oligodendroglioma, he presented with shoulder pain. An MRI demonstrated a large heterogeneously enhancing mass within the body of the left scapula extending into the glenoid and coracoid processes, as well as extending across the glenohumeral

joint and involving the proximal humerus. Extensive anterior and posterior extraosseous extension was also present. Biopsy of the mass revealed neoplastic proliferation of cells with round nuclei and frequent mitoses, morphologically very similar to the patient's prior anaplastic oligodendroglioma in the right frontal lobe. Tumor cells were positive with GFAP and S100 immunostains, and IDH1-R132H mutation was detected by immunostain. In situ hybridization study revealed 1p/19q codeletion in the neoplastic cells. Overall, the findings were consistent with metastatic anaplastic oligodendroglioma. Metastatic oligodendrogliomas are rare and only a handful of cases have been reported in the literature with bone being the most frequent metastatic site. It is important to be aware of the possibility of extracranial metastasis of oligodendroglioma when diagnosing bone lesions because it can represent a serious diagnostic challenge if clinical history is unknown. Knowledge of prior patient's clinical history aids tremendously in diagnostic accuracy of these cases.

Arden RL, Griggs ZH and **Wey EA** (2018). "Asymptomatic septal mass." JAMA Otolaryngology - Head and Neck Surgery 144(2): 169-170.

[Full Text](#)

Department of Pathology

Bataineh ZA and **Novotny NM** (2018). "A novel nonelectrosurgical technique for incising the pylorus in laparoscopic pyloromyotomy." Journal of Laparoendoscopic and Advanced Surgical Techniques 28(2): 235-236.

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Department of Surgery

Objective: Since the loss of the protected arthrotomy knife several years ago, pediatric surgeons have struggled to find a safe, reliable, and inexpensive way to incise the pyloric serosa before spreading the muscle. The most widely accepted method of cutting the serosa is with electrocautery, although some still question its safety. We introduce a novel technique of incising the serosa with a percutaneously inserted needle without the use of electrocautery. Description: In this case series, we describe the experience of a single surgeon with a novel technique of incising the serosa. A retrospective chart review was conducted between January 2012 and September of 2015. In 6 patients, the serosal incision on the pylorus was made using a percutaneously inserted 18 gauge needle to cut the serosa and the superficial hypertrophied muscle fibers. As the body of the needle is not sharp, it protects the mucosa from being lacerated as the incision is carried out given a fixed depth of cut. Results: The last 6 patients with hypertrophic pyloric stenosis underwent this technique. There were no conversions to open. In addition, there were no perforations and no complications related to the alteration in technique. Conclusions: Although many manufacturers pursue both disposable and nondisposable solutions to this problem, we believe this is a safe, reliable, and very inexpensive solution to this simple problem.

Bauer ME, Price LK, MacEachern MP, Housey M, Langen ES and **Bauer ST** (2018). "Maternal leukocytosis after antenatal corticosteroid administration: a systematic review and meta-analysis." Journal of Obstetrics and Gynaecology 38(2): 210-216.

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Department of Obstetrics and Gynecology

Although it is known that corticosteroid administration causes leukocytosis, the magnitude and length of time this leukocytosis persists is unknown during pregnancy. This study aimed to establish the expected range of maternal leukocytosis in healthy pregnant women at risk for preterm delivery after antenatal corticosteroid administration. PubMed, Embase and ClinicalTrials.gov were searched to identify the studies in healthy women at risk for preterm delivery without signs of clinical infection that reported white blood cell values preceding and after antenatal corticosteroid administration. The inverse variance weighting technique was used to calculate the weighted means and the standard deviation from the mean for each time period. Six studies met inclusion criteria and included 524 patients and 1406 observations. Mean \pm standard deviation maternal white blood cell count values prior to antenatal corticosteroid administration and up to 24, 48, 72 and 96 hours after corticosteroid administration were 10.4 ± 2.4 , 13.6 ± 3.6 , 12.1 ± 3.0 , 11.5 ± 2.9 and $11.1 \pm 2.5 \times 10^9/L$, respectively. Leukocytosis in healthy, non-infected women is expected to peak 24 hours after antenatal corticosteroid administration and the magnitude of increase is small.

Beeravolu N, **Brougham J**, Khan I, McKee C, **Perez-Cruet M** and Chaudhry GR (2018). "Human umbilical cord derivatives regenerate intervertebral disc." Journal of Tissue Engineering and Regenerative Medicine 12(1): e579-e591.
[Full Text](#)

OUWB Medical Student Author

Intervertebral disc (IVD) degeneration is characterized by the loss of nucleus pulposus (NP), which is a common cause for lower back pain. Although, currently, there is no cure for the degenerative disc disease, stem cell therapy is increasingly being considered for its treatment. In this study, we investigated the feasibility and efficacy of human umbilical cord mesenchymal stem cells (MSCs) and chondroprogenitor cells (CPCs) derived from those cells to regenerate damaged IVD in a rabbit model. Transplanted cells survived, engrafted and dispersed into NP in situ. Significant improvement in the histology, cellularity, extracellular matrix proteins, and water and glycosaminoglycan contents in IVD recipients of CPCs was observed compared to MSCs. In addition, IVDs receiving CPCs exhibited higher expression of NP-specific human markers, SOX9, aggrecan, collagen 2, FOXF1 and KRT19. The novelty of the study is that in vitro differentiated CPCs derived from umbilical cord MSCs, demonstrated far greater capacity to regenerate damaged IVDs, which provides basis and impetus for stem cell based clinical studies to treat degenerative disc disease.

Black E, Nesi-Eloff F and Nesi FA (2018). "Eyelid laceration and lid defects," In Levine MR and Allen RC (ed). Manual of Oculoplastic Surgery. Cham: Springer International Publishing. pp: 39-45.

[Full Text](#)

Department of Ophthalmology

Eyelid reconstruction is a common challenge that ophthalmic and plastic surgeons encounter. Facial trauma, tumors, and congenital colobomas are examples of instances when such procedures are required. Knowledge of the anatomy of the periorbital tissues is crucial for the precise repair of the involved structures to ensure proper lid function and to prevent excessive cicatrix formation. The surgeon should be able to choose the appropriate technique and should be familiar with the step-by-step plan in order to prevent loss of excessive tissue. Different approaches will be discussed with emphasis on eyelid trauma. However, all these can be applied to periocular tumor excision and reconstruction as well.

Black EH, Winkler KP and Gladstone GJ (2018). "Endoscopic foreheadplasty," In Gladstone GJ, Nesi FA and Black EH (ed). Oculoplastic Surgery Atlas : Cosmetic Facial Surgery. Cham: Springer International Publishing. pp: 19-26.

[Full Text](#)

Department of Ophthalmology

The positioning of the eyebrow is important for maintaining a periorbital contour and symmetry that is aesthetically pleasing. Many authors have described formulas for positioning the "ideal" brow, but in reality this depends on the patient's characteristics. Each person has unique physical attributes that make him or her attractive, and there is no formula that can encompass these factors. The surgeon must look at each eyebrow on an individual basis.

Brindle ME, Henrich N, Foster A, Marks S, Rose M, **Welsh R** and Berry W (2018). "Implementation of surgical debriefing programs in large health systems: An exploratory qualitative analysis." BMC Health Services Research 18(1): 210.

[Full Text](#)

Department of Surgery

Background: The role of the "debrief" to address issues related to patient safety and systematic flaws in care is frequently overlooked. In our study, we interview surgical leaders who have developed successful strategies of debriefing within a comprehensive program of quality improvement. **Methods:** Semi-structured interviews of four implementation leaders were performed. The observations, beliefs and strategies of surgical leaders are compared and contrasted. Common themes are identified related to program success and failure. Quality and safety researchers performed, coded and categorized the interviews and coordinated the analysis and interpretation of the results. The authors from the four institutions aided in interpretation and framing of the results. **Results:** The debriefing programs evaluated were part of comprehensive quality improvement projects. Seven high-level themes and 24 subthemes were identified from the interviews. Themes related to leadership included early engagement, visible ongoing commitment and enforcement.

Success appeared to depend upon meaningful and early debriefing feedback. The culture of safety that promoted success included a commitment to open and fair communication and continuous improvement. There were many challenges to the success of debriefing programs. The loss of institutional commitment of resources and personnel was the instigating factor behind the collapse of the program at Michigan. Other areas of potential failure included communication issues and loss of early and meaningful feedback. Conclusions: Leaders of four surgical systems with strong debriefing programs report success using debriefing to improve system performance. These findings are consistent with previously published studies. Success requires commitment of resources, and leadership engagement. The greatest gains may be best achieved by programs that provide meaningful debriefing feedback in an atmosphere dedicated to open communication.

Bryant N, Shievitz M and **Berger D** (2018). "Use of systematic thrombolytics for refractory cardiac arrest due to presumed myocardial infarction." Critical Care Medicine 46(1): 119-119.

[Full Text](#)

Department of Emergency Medicine

Burgos KD, Sienko SE, Hoffman JL, Koerber JM and **Smythe MA** (2018). "Characteristics, management, and outcomes of patients with atrial fibrillation experiencing a major bleeding event while on rivaroxaban." Clinical and Applied Thrombosis/Hemostasis 24(2): 372-378.

[Full Text](#)

Department of Foundational Medical Studies

Rivaroxaban, the first oral direct factor Xa inhibitor, was approved for stroke prevention in nonvalvular atrial fibrillation in 2011. Limited data are available regarding major bleeding in a clinical practice setting. The purpose of this study is to describe the patient characteristics, management, and outcomes of major bleeding events in patients receiving rivaroxaban for atrial fibrillation. This retrospective, single health system study identified patients with rivaroxaban having a major bleeding event between July 2011 and June 2014. Patients were identified through adverse event reporting or by cross-referencing rivaroxaban with International Classification of Diseases, Ninth Revision diagnosis codes for atrial fibrillation and hemorrhage, with and without transfusion. A total of 60 patients were identified. The mean age of patients was 80.3 ± 7.4 years. The most common bleed sites were gastrointestinal (63.3%) and intracranial (26.7%). Higher dose than recommended based on renal function was present in 35% of patients and concurrent antiplatelet therapy occurred in 70%. Activated prothrombin complex concentrate was utilized in 30% of patients and recombinant factor VIIa in 6.7%. A procedure or surgery was performed for bleed management in 10 patients. Anticoagulation was held at discharge in 76% of patients. A total of 6 patients died during hospital admission, 5 of whom experienced an intracranial hemorrhage. In conclusion, patients experiencing a rivaroxaban major bleeding event were elderly, often renally impaired, and receiving concurrent antiplatelet therapy. In-hospital mortality was 10%. The majority of patients (76%) had anticoagulation therapy held at discharge.

Calkins H, Hindricks G, Cappato R, Kim Y-H, Saad EB, Aguinaga L, Akar JG, Badhwar V, Brugada J, Camm J, Chen P-S, Chen S-A, Chung MK, Nielsen JC, Curtis AB, Davies DW, Day JD, d'Avila A, de Groot NMS, Di Biase L, Duytschaever M, Edgerton JR, Ellenbogen KA, Ellinor PT, Ernst S, Fenelon G, Gerstenfeld EP, **Haines DE**, Haissaguerre M, Helm RH, Hylek E, Jackman WM, Jalife J, Kalman JM, Kautzner J, Kottkamp H, Kuck KH, Kumagai K, Lee R, Lewalter T, Lindsay BD, Macle L, Mansour M, Marchlinski FE, Michaud GF, Nakagawa H, Natale A, Nattel S, Okumura K, Packer D, Pokushalov E, Reynolds MR, Sanders P, Scanavacca M, Schilling R, Tondo C, Tsao H-M, Verma A, Wilber DJ and Yamane T (2018). "2017 HRS/EHRA/ECAS/APHRS/SOLAECE expert consensus statement on catheter and surgical ablation of atrial fibrillation: Executive summary." EP Europace 20(1): 157-208.

[Full Text](#)

Department of Internal Medicine

During the past three decades, catheter and surgical ablation of atrial fibrillation (AF) have evolved from investigational procedures to their current role as effective treatment options for patients with AF. Surgical ablation of AF, using either standard, minimally invasive, or hybrid techniques, is available in most major hospitals throughout the world. Catheter ablation of AF is even more widely available, and is now the most

commonly performed catheter ablation procedure.

Cami E, Tagami T, **Raff G, Gallagher M, Bilollikar AN, Chinnaiyan K**, Fan A, Hafeez A and **Safian R** (2018). "Importance of site measurement on interpretation of fractional flow reserve by coronary computed tomography angiography: Reclassification of positive and negative results." Journal of the American College of Cardiology 71(11): 1573-1573.

[Full Text](#)

Department of Internal Medicine

Background: Fractional flow reserve by coronary computed tomography angiography (FFRCT) can be measured at multiple locations in a coronary artery. Currently there is no standardization or a consensus on interpreting and reporting FFRCT and the optimal location to measure FFR has not been determined. Methods: As part of a single-center registry, 729 patients underwent coronary computed tomography angiography (CTA) and FFRCT. Normal vessels and vessels with single lesions were classified into stenosis grades 0-4 in the proximal and mid left anterior descending artery (LAD, n= 381 vessels) and right coronary artery (RCA, n= 437 vessels). FFRCT values were obtained from two points in each of the proximal, mid, and distal segments, so 6 values per vessel were obtained. Frequency of positive FFRCT was evaluated by measuring values in the distal vessel and distal to the stenosis. Distal to the stenosis is defined as the 3rd value for proximal stenosis and 5th value for middle segment stenosis. Reclassification rates for positive FFRCT (based on lowest value in the terminal vessel) to negative FFRCT based on value distal to the stenosis was calculated. Results: Overall, for all LADs (prox and mid and grade 0-4) the rate of positive FFRCT (≤ 0.8) based on the lowest value in the distal vessel was 45.1% (n=172/381) vs 18.1% (n=69/381) based on the FFRCT distal to the lesion, while the reclassification rate of positive FFRCT (≤ 0.8) (based on lowest value) to negative FFRCT (based on value distal to the lesion) was 59.8% (n=103/172, p<0.001). For all RCAs the rate of positive FFRCT based on the lowest value in the distal vessel was 8.9% (n=39/437) vs 3.6% (n=16/437) based on the FFRCT just distal to the lesion. The reclassification rate of positive FFRCT (by lowest value in distal vessel) to negative by value distal to the lesion was 58.9% (n=23/39, p<0.001). Conclusion: The FFRCT in the distal vessel should not be used for interpretation due to the high likelihood of false positive results. FFRCT measured in the vessel segment just distal to a stenosis rather than in the distal vessel improves the specificity of FFRCT and ensures that changes in FFRCT are due to the more proximal stenosis rather than to factors unrelated to the stenosis.

Cami E, Tagami T, **Raff G, Gallagher M, Chinnaiyan K, Bilollikar AN**, Fan A, Hafeez A and **Safian R** (2018). "Profiles of fractional flow reserve derived from computed tomography angiography (FFRCT) in patients with coronary artery disease." Journal of the American College of Cardiology 71(11): 1574-1574.

[Full Text](#)

Department of Internal Medicine

Background: Invasive fractional flow reserve (FFR) and FFR derived from computed tomography angiography (FFRCT) are usually identified at a single location in the distal artery, but the optimal location to measure FFR has not been determined. Methods: As part of a single-center registry, 729 patients underwent coronary computed tomography angiography (CTA) and FFRCT. FFRCT values were obtained from two points in each of the proximal, mid, and distal segments of the LAD (n= 385) and RCA(n=475). FFRCT profiles were created for normal (grade 0) and stenotic (grades 1-4) arteries by expressing FFRCT as a function of the six locations in each vessel, stratified by lesion location (proximal or mid) and severity (grade 0-4). Results: In normal arteries, FFRCT profiles demonstrate a continuous significant decline in FFRCT from the ostium to the distal vessel for the LAD (0.96 ± 0.024 vs. 0.86 ± 0.054 , P<0.001) and RCA (0.99 ± 0.006 vs. 0.90 ± 0.037 , P<0.001). There is another significant decline in FFRCT across the distal LAD (p < 0.001), but not in the distal RCA. In coronary arteries with varying degrees of stenosis in the proximal and mid vessel, the values of FFRCT in the distal vessels are due to a decline in FFRCT that is related to the stenosis, plus a decline in FFRCT that is unrelated to this stenosis. Conclusion: FFRCT profiles identify significant declines in FFRCT throughout the LAD and RCA, even in normal vessels. Part of this decline is unrelated to more proximal stenosis. FFRCT should not be measured in terminal LAD.

Cappell MS, Edhi A and **Amin M** (2018). "Case report of primary intestinal lymphangiectasia diagnosed in an octogenarian by ileal intubation and by push enteroscopy after missed diagnosis by standard colonoscopy and EGD."

[Medicine](#) 97(3): e9649.

[Full Text](#)

Department of Pathology

Department of Internal Medicine

Rationale: Primary intestinal lymphangiectasia (PIL) is a rare, presumably congenital lesion that is usually diagnosed in patients < 3 years old, is rarely first diagnosed in adulthood, and when first diagnosed in adulthood typically presents with symptoms for many years. Although PIL is often identified by endoscopic abnormalities, it must be emphasized that the jejunoleum/distal duodenum must be intubated for diagnosis because the lesions are present in these regions. This work demonstrates that 1)-PIL can occur in an octogenarian; 2)-shows that the characteristic endoscopic findings are not found at colonoscopy without terminal ileal intubation; and 3)-may be missed at standard EGD without distal duodenal intubation.

Diagnoses: A patient initially presented at age 83 with symptoms of watery diarrhea, abdominal distention, 5-Kg-weight-gain, and weakness for one month, and had typical clinical findings of PIL including chylous ascites, pleural effusions, bilateral pitting leg edema, hypoalbuminemia, borderline lymphopenia, hypovitaminosis-D, and hypocalcemia. Protein-losing-enteropathy was demonstrated by positive stool tests for alpha-1-antitrypsin. Standard colonoscopy revealed no significant lesions, but terminal ileal intubation during colonoscopy demonstrated creamy-white, punctate, mucosal lesions in terminal ileum, characteristic of lymphangiectasia. EGD with intubation to mid-descending duodenum revealed no significant lesions, but subsequent enteroscopy demonstrated lesions in distal duodenum/proximal jejunum similar to those in terminal ileum characteristic of lymphangiectasia. Histopathologic analysis of lesions of terminal ileum/distal duodenum demonstrated dilated mucosal vessels, confirmed as lymphatic vessels by immunohistochemistry. PIL was diagnosed after excluding secondary causes of intestinal lymphangiectasia. Interventions/Outcomes: Patient placed on standard PIL diet: oral supplements of medium-chain triglycerides, a high protein diet, supplements of fat-soluble vitamins, and avoiding long-chain fatty acids, with marked clinical improvement. Lessons: This work shows that: 1)-standard EGD and colonoscopy may miss characteristic lesions of PIL, 2)-enteroscopy or terminal ileal intubation at colonoscopy may be required for the diagnosis because lesions are typically located in distal duodenum/jejunoleum; and 3)-PIL can first present in the very elderly even with symptoms of short duration.

Carbonell AM, Warren JA, Prabhu AS, Ballecer CD, **Janczyk RJ**, Herrera J, Huang LC, Phillips S, Rosen MJ and Poulouse BK (2018). "Reducing length of stay using a robotic-assisted approach for retromuscular ventral hernia repair: A comparative analysis from the Americas Hernia Society Quality Collaborative." [Annals of Surgery](#) 267(2): 210-217.

[Full Text](#)

Department of Surgery

OBJECTIVE: The aim of this study was to compare length of stay (LOS) after robotic-assisted and open retromuscular ventral hernia repair (RVHR). BACKGROUND: RVHR has traditionally been performed by open techniques. Robotic-assisted surgery enables surgeons to perform minimally invasive RVHR, but with unknown benefit. Using real-world evidence, this study compared LOS after open (o-RVHR) and robotic-assisted (r-RVHR) approach. METHODS: Multi-institutional data from patients undergoing elective RVHR in the Americas Hernia Society Quality Collaborative between 2013 and 2016 were analyzed. Propensity score matching was used to compare median LOS between o-RVHR and r-RVHR groups. This work was supported by an unrestricted grant from Intuitive Surgical, and all clinical authors have declared direct or indirect relationships with Intuitive Surgical. RESULTS: In all, 333 patients met inclusion criteria for a 2:1 match performed on 111 r-RVHR patients using propensity scores, with 222 o-RVHR patients having similar characteristics as the robotic-assisted group. Median LOS [interquartile range (IQR)] was significantly decreased for r-RVHR patients [2 days (IQR 2)] compared with o-RVHR patients [3 days (IQR 3), $P < 0.001$]. No differences in 30-day readmissions or surgical site infections were observed. Higher surgical site occurrences were noted with r-RVHR, consisting mostly of seromas not requiring intervention. CONCLUSIONS: Using real-world evidence, a robotic-assisted approach to RVHR offers the clinical benefit of reduced postoperative LOS. Ongoing monitoring of this technique should be employed through continuous quality improvement to determine the long-term effect on hernia recurrence, complications, patient satisfaction, and overall cost.

Castillo F and **Gladstone GJ** (2018). "Endoscopic midface lift," In Gladstone GJ, Nesi FA and Black EH (ed).

Oculoplastic Surgery Atlas : Cosmetic Facial Surgery. Cham: Springer International Publishing. pp: 31-36.

[Full Text](#)

Department of Ophthalmology

Over the past two decades, new techniques for facial rejuvenation have been developed to address not only the excess laxity of the aging facial skin, but also the inferior descent that characterizes the aging face. The traditional facelift, even with a SMAS plication, is directed at correcting excess laxity, but in the author's opinion it has the drawback of tightening the tissues in an anteroposterior direction without adequately addressing age-related tissue descent. A vertical lift is a more anatomically correct method of counteracting the vertical displacement of the face that is responsible for prominent nasolabial folds, a skeletonized appearance of the lower eyelids and malar prominence, and, to a lesser degree, the pre-jowl sulcus.

Chenam A and **Jafri SMA** (2018). "Complications of inguinal lymphadenectomy," In Delman KA and Master VA (ed). Malignancies of the Groin: Surgical and Anatomic Considerations. Cham: Springer International Publishing. pp: 39-53.

[Full Text](#)

Department of Urology

The urologic oncology literature has supported a more aggressive use of inguinal lymph node dissection in patients with high-risk penile cancer. Lymphadenectomy provides important staging that may determine the need for further adjuvant therapies and may prove therapeutic in some tumors. However, surgical morbidity can be a significant problem after radical inguinal lymph node dissection. Wound infection, skin necrosis, wound dehiscence, and lymphedema have been reported in a high portion of cases. Modified approaches and development of new techniques have reduced the incidence of these complications. This chapter provides an overview of complications of inguinal lymph node dissection for penile cancer and outlines strategies that may be helpful in preventing or treating these complications.

Cheslock M, Wunderlich T and **Afonso NM** (2018). "Older adult perspectives on their role in a community-based health profession education project." Journal of Gerontology and Geriatrics 66(1): 30-35.

[Full Text](#)

OUWB Medical Student Author

Department of Foundational Medical Studies

Background and Aims: Although 18.7 million adults ages 55 and older volunteer in their communities each year, it is unclear which factors motivate them to participate in community-based education programs, such as the Partners in Care program. Partners in Care pairs medical, physical therapy, and nursing students together to conduct home care visits with older adults. This project seeks to understand how older adults define their role as educators and learn which factors motivate them to volunteer. Methods: This mixed-methods study employed a survey measuring attitudes about volunteering and an optional focus group. The research team developed the survey tool, which included 25 Likert scale items and two open-ended questions. The focus group consisted of 13 randomly selected program volunteers. Results: A total of 101 surveys were sent with a response rate of 62%. Respondents' ages ranged from 65 to > 80. Alpha factor analysis of the survey and thematic analysis of focus group data revealed seven themes for why older adults volunteer: altruism, personal development, feeling part of a community, education of students, uniqueness of program, engagement with students, and sharing unique health experiences as older adults. Feedback and suggestions were also collected. Conclusions: Partners in Care provides students with an opportunity to engage older adults, meet established geriatric competencies, and gain insight into interprofessional teamwork. By understanding older adults' perspectives on their role as educators, we hope to improve volunteer satisfaction, expand the program, and encourage further interactions between older adults and health professional students.

Cho I, Al'Aref SJ, Berger A, Ó Hartaigh B, Gransar H, Valenti V, Lin FY, Achenbach S, Berman DS, Budoff MJ, Callister TQ, Al-Mallah MH, Cademartiri F, **Chinnaiyan K**, Chow BJW, DeLago A, Villines TC, Hadamitzky M, Hausleiter J, Leipsic J, Shaw LJ, Kaufmann PA, Feuchtner G, Kim Y-J, Maffei E, **Raff G**, Pontone G, Andreini D, Marques H, Rubinshtein R, Chang H-J and Min JK (2018). "Prognostic value of coronary computed tomographic angiography findings in asymptomatic individuals: a 6-year follow-up from the prospective multicentre international CONFIRM study." European Heart Journal 39(11): 934-941.

[Full Text](#)

Department of Internal Medicine

Aim: The long-term prognostic benefit of coronary computed tomographic angiography (CCTA) findings of coronary artery disease (CAD) in asymptomatic populations is unknown. **Methods:** and results From the prospective multicentre international CONFIRM long-term study, we evaluated asymptomatic subjects without known CAD who underwent both coronary artery calcium scoring (CACS) and CCTA (n = 1226). Coronary computed tomographic angiography findings included the severity of coronary artery stenosis, plaque composition, and coronary segment location. Using the C-statistic and likelihood ratio tests, we evaluated the incremental prognostic utility of CCTA findings over a base model that included a panel of traditional risk factors (RFs) as well as CACS to predict long-term all-cause mortality. During a mean follow-up of 5.9 ± 1.2 years, 78 deaths occurred. Compared with the traditional RF alone (C-statistic 0.64), CCTA findings including coronary stenosis severity, plaque composition, and coronary segment location demonstrated improved incremental prognostic utility beyond traditional RF alone (C-statistics range 0.71–0.73, all $P < 0.05$; incremental χ^2 range 20.7–25.5, all $P < 0.001$). However, no added prognostic benefit was offered by CCTA findings when added to a base model containing both traditional RF and CACS (C-statistics $P > 0.05$, for all). **Conclusions:** Coronary computed tomographic angiography improved prognostication of 6-year all-cause mortality beyond a set of conventional RF alone, although, no further incremental value was offered by CCTA when CCTA findings were added to a model incorporating RF and CACS.

Chuang YC, Tyagi P, Wang HJ, Huang CC, Lin CC and **Chancellor MB** (2018). "Urodynamic and molecular characteristics of detrusor underactivity in a rat cryoinjury model and effects of low energy shock wave therapy." *Neurourology and Urodynamics* 37(2): 708-715.

[Full Text](#)

Department of Urology

Aims: Low energy shock wave (LESW) has been shown to facilitate tissue regeneration and reduce inflammation. We investigated the effects of LESW in an underactive (DU) model induced by cryoinjury of rat detrusor. **Methods:** Forty-six female Sprague-Dawley rats were divided into sham, cryoinjury with or without LESW (0.12 mJ/mm²; 200 pulses). Under halothane anesthesia, a low midline incision was made and a cryoinjury of detrusor was induced by placing an aluminum rod (chilled with dry ice) for 30 s on the serosal side of the bladder filled with 1 mL sterile saline bilaterally. Awake cystometrograms (CMG), molecular and histopathology studies were performed on Day 8 or 15 after cryoinjury. **Results:** Significant urodynamic, histological, and molecular changes induced by cryoinjury of rat detrusor were detected on Day 8 and decrease in the contraction amplitude (54.3%), a significant increase in wet bladder weight (64.1%), edematous changes, muscle thinning and downregulation of α -SMA, IL-6, and upregulation of COX-2. LESW reversed the cryoinjury induced histological and COX-2 expression to cause a 49.0% increase in the contraction amplitude ($P < 0.05$). LESW induced cell proliferation was revealed by increased CD31 and Ki67 immunostaining. The effect of cryoinjury on urodynamic and histological changes was maintained till Day 15. **Conclusion:** The cryoinjury of rat detrusor models myogenic DU, which is partially reversed by LESW. LESW may afford a simple, non-invasive modality to facilitate tissue regeneration and improve voiding function in myogenic detrusor underactivity.

Comfere N, **Sundram U**, Hurley MY and Swick B (2018). "Views of dermatopathologists about clonality assays in the diagnosis of cutaneous T-cell and B-cell lymphoproliferative disorders." *Journal of Cutaneous Pathology* 45(1): 39-47.

[Full Text](#)

Department of Pathology

Background: Appropriate use criteria have been developed for many tests using expert judgment, evidence-based practice and clinical experience. In this context, we report the opinions of practitioners about clonality assays in various clinical scenarios where cutaneous lymphoma is suspected. **Methods:** An Appropriate Use Criteria Task Force sponsored by the American Society of Dermatopathology (ASDP) synthesized clinical scenarios for cutaneous lymphoproliferative disorders (LPDs). We conducted, summarized and presented a relevant literature search to an audience of 144 dermatopathologists with a variety of practice experiences at the 53rd Annual Meeting of the ASDP in Chicago, IL. **Results:** Twenty-seven clinical scenarios for LPDs (13 T-cell and 14 B-cell) were defined. Forty relevant studies for T-cell receptor gene clonality assays and 20 relevant studies for IgH/IgK clonality assays were identified. Audience response data from participating

dermatopathologists reflected a wide variety of approaches to the application of clonality assays in the evaluation of LPDs, based on practice setting, personal experience and test availability. Conclusions: Our clinical scenario analysis and literature review revealed well-supported clinical scenarios and identified opportunities for additional research to further define the utility of clonality assays in some clinical scenarios.

Copelan AZ, **Krishnan A**, Marin H and **Silbergleit R** (2018). "Dural arteriovenous fistulas: A characteristic pattern of edema and enhancement of the medulla on MRI." *American Journal of Neuroradiology* 39(2): 238-244.

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Department of Diagnostic Radiology and Molecular Imaging

Medullary edema with enhancement is rarely reported at initial MR imaging in intracranial dural arteriovenous fistulas. We report a series of 5 patients with dural arteriovenous fistulas, all of whom demonstrated a characteristic pattern of central medullary edema and medullary enhancement at initial MR imaging. Cognard type V dural arteriovenous fistula, defined by drainage into the perimedullary veins and the veins surrounding the brain stem, is a rare yet well-described pathologic entity. Even more rarely reported, however, is its clinical presentation with predominantly bulbar symptoms and MR imaging findings of central medullary edema with enhancement. This constellation of findings frequently leads to a convoluted clinical picture, prompting work-up for alternative disease processes and delaying diagnosis. Because an expedited diagnosis is critical in preventing poor outcomes, it is paramount to make the referring physician and neuroradiologist more cognizant of this rare-yet-characteristic imaging manifestation of dural arteriovenous fistula.

Cousineau C and **Li W** (2018). "Assessing the mutation profile in colorectal carcinoma using next generation sequencing." *American Journal of Clinical Pathology* 149: S140-S140.

[Full Text](#)

Department of Pathology

Objectives: Over 40,000 diagnoses of locally advanced rectal cancer are made yearly in the United States, and only 40%-60% of cases respond to presurgical chemotherapy and radiation. Even fewer patients completely respond to chemoradiation. Identifying genetic biomarkers to help predict which patients may respond to therapy could help direct treatment. Next-generation sequencing (NGS) has made it possible to screen for variants in large panels of genes. Our goal is to compare mutation profiles in patients who experienced complete response to therapy against those who had a poor response (little to no tumor kill). Methods: We collected formalin-fixed paraffin-embedded (FFPE) tissue from rectal adenocarcinoma biopsies from patients (n = 12) with complete response to therapy before surgery and biopsies with corresponding surgical resection specimens from poor responders (n = 12). NGS using the Human Comprehensive Cancer Targeted Panel (Qiagen, Germantown, MD), which screens for variants in 160 genes commonly mutated in cancer, was performed on the specimens. Results: The analysis in poor responders to treatment revealed mutations in several genes, including a number previously identified in colorectal cancer. Of note, variants in *FGFR3*, *PIK3R1*, *EP300*, and *PTEN* were found. Interestingly an additional gene, *GNAQ*, was mutated in each poor responder case, either in the biopsy or surgical specimen. Conclusion: *GNAQ* codes for a guanine nucleotide-binding protein that couples transmembrane receptors to intracellular signaling pathways. Previously, *GNAQ* mutations have been reported in melanoma and some ocular and spinal cord neoplasms. It is a novel mutation identified in rectal carcinoma, only rarely reported in common solid tumors and leukemias. *GNAQ* may prove to be a diagnostic tool in predicting a response to treatment in rectal cancer. Our goal is to confirm these mutations, including *GNAQ*, in additional poor responder cases and compare the overall mutation profile to patients with a complete response.

Cousineau C, **Posey Y**, **Sykes E** and **Douglas-Nikitin V** (2018). "Primary adrenal lymphoma presenting with severe hyponatremia." *American Journal of Clinical Pathology* 149: S10-S11.

[Full Text](#)

Department of Pathology

Primary adrenal lymphoma (PAL) is a rare entity that usually presents with massive enlargement of both adrenals, and is associated with clinical and laboratory evidence of adrenal dysfunction. Few cases of PAL have been reported, most of which illustrate evidence of Addison disease. When 90% of the adrenal cortex is destroyed, serum cortisol dramatically decreases. However, we describe a case of PAL in a patient with

refractory hyponatremia and adequate serum cortisol. A 63-year-old man presented to our institution with a six-month history of weakness, weight loss, and losses of consciousness; he was hospitalized multiple times and diagnosed with the syndrome of inappropriate antidiuretic hormone secretion (SIADH). His serum sodium and osmolality, along with urine sodium and osmolality, fulfilled the diagnostic criteria for SIADH. Potassium and morning serum cortisol (20.3 ug/dL) were normal. The patient quickly deteriorated after admission and expired. A CT scan revealed mass-like enlargement of the adrenals with extensive disease involving the kidneys, liver, and spleen. A liver biopsy displayed diffuse infiltration by large, atypical cells with high nuclear pleomorphism. The cells were cohesive and were seen in clusters and single file. Immunohistochemical stains for CD79A, PAX5, MUM1, and BCL6 were positive in neoplastic cells, consistent with diffuse large B-cell lymphoma (DLBCL). Interestingly, the cells did not express CD20. PAL should be considered in the differential diagnosis when nodular lesions involve both adrenals. The most common subtype is DLBCL. PAL has a predilection for men averaging 65 years of age and a propensity to involve multiple extranodal regions, including the liver and spleen. Despite difficulty identifying the adrenal cortex grossly and microscopically, and although a Cortrosyn stimulation test was not performed, the overall picture argues against adrenal insufficiency as the cause of hyponatremia. The cause of SIADH remains unclear.

Dave C, Faraj K, Vakharia P, Boura J and **Hollander J** (2018). "Quality improvement Foley Project to reduce catheter-related trauma in a large community hospital." Journal for Healthcare Quality 40(1): 51-57.

[Full Text](#)

Department of Urology

Indwelling catheter placement is a modifiable risk factor for urethral trauma. We implemented a multidisciplinary Foley Project protocol in June 2015, which consisted of a system-wide catheter education program, difficult urinary catheterization (DUC) algorithm, and skilled catheter nursing team to improve patient outcomes. A retrospective review of male DUC consults between June 2014 and September 2015 was performed. The preprotocol group includes consults received from June 2014 to May 2015. The postprotocol group includes consults received from June 2015 to September 2015. There were 74 patients in the preprotocol and 18 patients in the postprotocol group. The overall incidence rates of catheter-associated trauma during placement were 41.1% in the preprotocol and 5.9% in the postprotocol groups ($p = .005$). In the preprotocol group, 53.4% required a procedure by a urologist, whereas only 11.8% of patients in the postprotocol group required a procedure ($p = .002$). The Foley Project protocol reduced the frequency of catheter-associated trauma and procedures.

Desai D, **Smythe M** and **Sykes E** (2018). "The ability of the immucor IgG-specific ELISA optical density result to predict SRA positivity for the diagnosis of heparin-induced thrombocytopenia (HIT)." American Journal of Clinical Pathology 149: S30-S30.

[Full Text](#)

Department of Foundational Medical Studies

Department of Pathology

Introduction: Diagnosis of heparin-induced thrombocytopenia (HIT) usually requires detecting anti-platelet factor 4/heparin antibodies, particularly the IgG isotype (anti-PF4/H-IgG). In 2010, we developed a HIT diagnostic algorithm using the Immucor IgG-specific enzyme-linked immunosorbent assay (ELISA; PF4 IgG, Immucor GTI Diagnostics, Waukesha, WI) to screen for anti-PF4/H-IgG; if positive (optical density [OD] >0.4) or if significant clinical suspicion exists (regardless of OD) serum is sent to BloodCenter of Wisconsin (BCW) for the serotonin-release assay (SRA). Our ELISA reports include the likelihood (%) of a positive SRA based upon the ELISA OD, as follows: 0.40–0.99 (10%); 1.00–1.39 (20%); 1.40–1.99 (50%); >2.00 (100%). However, because these estimates were based on a previous study (*J Thromb Haemost* 2008;6:1304–12) using an "in-house" IgG-specific ELISA and SRA (both from McMaster Platelet Immunology Laboratory), our objective was to evaluate the relationship between the Immucor IgG-specific ELISA and the BCW SRA. Method: We identified paired ELISA and SRA results from 2012 to 2016; only cases where the anti-PF4/H-IgG and SRA samples were identically timed were included. The ELISA results with associated SRA were divided into the following OD categories: <0.40; 0.40–0.99; 1.00–1.39; 1.40–1.99; >2.00. Results: A total of 4038 ELISAs (3,644 patients) were reported with OD <0.4 ($n = 3,778$), OD >0.4 ($n = 260$), and 171 exact-paired results. The percent likelihood of having a positive SRA was 0% (0/22) with OD <0.40; 11.5% (8/69) with OD 0.40–0.99; 40% (10/25) with OD 1.00–1.39; 76.3% (29/38) with OD 1.40–1.99; and 82.4% (14/17) with OD >2.00.

Conclusions: A negative Immucor IgG-specific ELISA predicts for a negative SRA. As expected, increasing OD values increase the likelihood of SRA positivity. However, with ELISA ODs >1.0, the predictive relationship between the Immucor IgG-specific ELISA and the BCW SRA differs somewhat from the predictive relationship for the two McMaster assays. We conclude that important differences in the ELISA-SRA relationship can exist among different anti-PF4/H-IgG ELISAs and different SRAs.

Ding X, Li X, **Qin A, Zhou J, Yan D, Stevens C, Krauss D** and **Kabolizadeh P** (2018). "Have we reached proton beam therapy dosimetric limitations? – A novel robust, delivery-efficient and continuous spot-scanning proton arc (SPArc) therapy is to improve the dosimetric outcome in treating prostate cancer." *Acta Oncologica* 57(3): 435-437.

[Full Text](#)

Department of Radiation Oncology

Faraj K, Dave C and **Feber KM** (2018). "Pediatric posterior tibial nerve stimulation," In J Gilleran and S Alpert (ed). *Adult and Pediatric Neuromodulation*. Cham: Springer International Publishing. pp: 201-206.

[Full Text](#)

Department of Urology

OUIWB Medical Student Author

Non-neurogenic lower urinary tract dysfunction (LUTD) is common throughout the pediatric population, with nearly 40% of pediatric urology visits being related to voiding dysfunction. Conventional treatment options include management of constipation, behavioral therapy (i.e., bladder training, pelvic floor exercises, biofeedback), and/or medical therapy (i.e., anticholinergics, alpha-blockers). Roughly 20% of patients will be refractory to these conventional therapies. As a result, unconventional methods such as neuromodulation, including posterior tibial nerve stimulation (PTNS), have been proposed as a treatment option. PTNS is FDA approved and has been well studied in the adult population and has recently become a target of interest for the management of pediatric voiding dysfunction. PTNS can be performed in either a percutaneous or transcutaneous approach. Percutaneous PTNS involves needle stimulation of the tibial nerve about 2 cm cephalad to the medial malleolus. Multiple studies have shown that this approach is effective in significantly improving symptoms of urgency, incontinence, normalizing voiding frequency, and improving urodynamic measures. The transcutaneous approach eliminates the use of a needle and instead uses adhesive electrodes to stimulate the tibial nerve. This approach has also been shown to significantly improve LUTD symptoms, as well as improve urodynamic measures. PTNS has emerged as a safe and noninvasive option that should be included in the discussion of pediatric patients suffering from refractory voiding dysfunction.

Ferruffino-Schmidt MC, Jeffrey Medeiros L, Liu H, Clemens MW, Hunt KK, Laurent C, Lofts J, **Amin MB**, Ming Chai S, Morine A, Di Napoli A, Dogan A, Parkash V, Bhagat G, Tritz D, Quesada AE, Pina-Oviedo S, Hu Q, Garcia-Gomez FJ, Jose Borrero J, Horna P, Thakral B, Narbaitz M, Hughes RC, Yang LJ, Fromm JR, Wu D, Zhang D, Sohani AR, Hunt J, Vadlamani IU, Morgan EA, Ferry JA, Szigeti R, Tardio JC, Granados R, Dertinger S, Offner FA, Pircher A, Hosry J, Young KH and Miranda RN (2018). "Clinicopathologic features and prognostic impact of lymph node involvement in patients with breast implant-associated anaplastic large cell lymphoma." *American Journal of Surgical Pathology* 42(3): 293-305.

[Full Text](#)

Department of Pathology

Breast implant-associated anaplastic large cell lymphoma (BI-ALCL) is a rare T-cell lymphoma that arises around breast implants. Most patients manifest with periprosthetic effusion, whereas a subset of patients develops a tumor mass or lymph node involvement (LNI). The aim of this study is to describe the pathologic features of lymph nodes from patients with BI-ALCL and assess the prognostic impact of LNI. Clinical findings and histopathologic features of lymph nodes were assessed in 70 patients with BI-ALCL. LNI was defined by the histologic demonstration of ALCL in lymph nodes. Fourteen (20%) patients with BI-ALCL had LNI, all lymph nodes involved were regional, the most frequent were axillary (93%). The pattern of involvement was sinusoidal in 13 (92.9%) cases, often associated with perifollicular, interfollicular, and diffuse patterns. Two cases had Hodgkin-like patterns. The 5-year overall survival was 75% for patients with LNI and 97.9% for patients without LNI at presentation (P=0.003). Six of 49 (12.2%) of patients with tumor confined

by the capsule had LNI, compared with LNI in 8/21 (38%) patients with tumor beyond the capsule. Most patients with LNI achieved complete remission after various therapeutic approaches. Two of 14 (14.3%) patients with LNI died of disease compared with 0/56 (0%) patients without LNI. Twenty percent of patients with BI-ALCL had LNI by lymphoma, most often in a sinusoidal pattern. We conclude that BI-ALCL beyond capsule is associated with a higher risk of LNI. Involvement of lymph nodes was associated with decreased overall survival. Misdiagnosis as Hodgkin lymphoma is a pitfall. © 2017 Wolters Kluwer Health, Inc. All rights reserved.

Fogla S, Pansare VM, Camero LG, Syeda U, Patil N and Chaudhury A (2018). "Cavitary lung lesion suspicious for malignancy reveals mycobacterium xenopi." [Respiratory Medicine Case Reports](#) 23: 83-85.

[Full Text](#)

Department of Pathology

Department of Family Medicine

We report the case of a 68-year-old gentleman who presented with musculoskeletal chest pain which appeared suddenly when he bent over with his dog. The chest pain was localized to the left lower chest and increased with movement and deep breathing. The patient did not complain weight loss, night sweat, fever or chill. He complained of mild cough, with expectoration of whitish mucus. Imaging revealed cavitary chest lesion in the right upper lobe, which was initially suspected to be lung cancer. The patient had a 50-year-old history of smoking 2 packs per day. PET CT imaging did not reveal any specific activity. Needle biopsy and bronchoalveolar lavage, however, did not reveal any malignant cells. Rather, necrotic tissues were observed. A wedge resection of the lung mass was performed. No common organisms or fungi could be grown. However, acid fast bacilli were observed in clumps. The morphology hinted towards non-tuberculous mycobacterial organism(s). Molecular studies revealed infection with *Mycobacterium xenopi*. The patient was started on an anti-tuberculous regimen of INH, rifampicin, ethambutol and PZA, with pyridoxine. The patient is a Vietnam veteran and complained of exposure to dust from a bird's nest and asbestos exposure in childhood, but no specific exposure to tuberculosis. The patient had an uneventful recovery post-surgery. He complained of some nausea after initiation of the antituberculous medications, but his pain subsided with time. The patient had diabetes, though specific reasons of compromise of immune status could not be pinpointed as causative of his nontuberculous mycobacterial lung infection.

Folberg R (2018). "The best and the brightest." [American Journal of Ophthalmology](#) 185: 5-7.

[Full Text](#)

Department of Foundational Medical Studies

Fong A, Chau CT, Quant C, Duffy J, Pan D and **Ogunyemi DA (2018).** "Multiple sclerosis in pregnancy: Prevalence, sociodemographic features, and obstetrical outcomes." [Journal of Maternal-Fetal and Neonatal Medicine](#) 31(3): 382-387.

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Department of Obstetrics and Gynecology

Objective: We sought to describe the prevalence, sociodemographic features, and antenatal/peripartum outcomes of multiple sclerosis (MS) in pregnancy. Study design: A retrospective cohort study was performed using deliveries in California from 2001 to 2009. Cases of MS as well as other morbidities were identified via ICD-9-CM code. Logistic regression was performed to adjust for potential confounders. Results: About 1185 out of 4,424,049 deliveries were complicated by MS. MS prevalence increased with maternal age, with Caucasians comprising a higher proportion of MS subjects. MS subjects were older and more likely to have private insurance. Women with MS were more likely to have preexisting medical conditions such as asthma, chronic hypertension, thyroid disease, or cardiac disease. However, no significant antepartum and peripartum morbidities were found to be increased in patients with MS. Urinary tract infection, cesarean delivery, and induction of labor were slightly increased in MS patients. Conclusions: MS is a rare condition which is more likely to affect older Caucasian women of higher socioeconomic status and is associated with several preexisting medical conditions. MS, however, does not appear to pose significant increases in adverse pregnancy outcome. This suggests that pregnant patients with MS may likely experience an uneventful pregnancy.

Fontanesi J, Kopitzki B and **Zekman R** (2018). "Skin: The case for altered fractionation in the treatment of both malignant and benign conditions," In Trombetta M, Pignol J-P, Montemaggi P and Brady LW (ed). Alternate Fractionation in Radiotherapy: Paradigm Change. Cham: Springer International Publishing. pp: 273-305.

[Full Text](#)

Department of Neurosurgery

Department of Ophthalmology

While most physicians recognize that skin is our largest organ, most lay people are unaware of this fact and the important role it plays not only in protection but also in temperature regulation and other activities that are essential to the overall general health of each individual.

Franklin BA, Brinks J, Berra K, Lavie CJ, Gordon NF and Sperling LS (2018). "Using metabolic equivalents in clinical practice." American Journal of Cardiology 121(3): 382-387.

[Full Text](#)

Department of Internal Medicine

Metabolic equivalents, or METs, are routinely employed as a guide to exercise training and activity prescription and to categorize cardiorespiratory fitness (CRF). There are, however, inherent limitations to the concept, as well as common misapplications. CRF and the patient's capacity for physical activity are often overestimated and underestimated, respectively. Moreover, frequently cited fitness thresholds associated with the highest and lowest mortality rates may be misleading, as these are influenced by several factors, including age and gender. The conventional assumption that 1 MET = 3.5 mL O₂/kg/min has been challenged in numerous studies that indicate a significant overestimation of actual resting energy expenditure in some populations, including coronary patients, the morbidly obese, and individuals taking β -blockers. These data have implications for classifying relative energy expenditure at submaximal and peak exercise. Heart rate may be used to approximate activity METs, resulting in a promising new fitness metric termed the "personal activity intelligence" or PAI score. Despite some limitations, the MET concept provides a useful method to quantitate CRF and define a repertoire of physical activities that are likely to be safe and therapeutic. In conclusion, for previously inactive adults, moderate-to-vigorous physical activity, which corresponds to ≥ 3 METs, may increase MET capacity and decrease the risk of future cardiac events. © 2017 Elsevier Inc.

Gbadamosi B, Ezekwudo D, Nayak B, Yu Z, Gjorgova-Gjeorgjievski S, **Xie M**, Robert C, **Jaiyesimi I** and **Huben M** (2018). "Effective immunotherapy in bone marrow metastatic melanoma presenting with disseminated intravascular coagulopathy." Case Reports in Immunology 2018: 4520294.

[Full Text](#)

Department of Pathology

Department of Internal Medicine

Malignant melanoma is responsible for the majority of skin cancer deaths and is increasing in prevalence. Bone marrow (BM) involvement by melanoma is rare in the absence of widespread visceral disease. Here, we report the case of a 30-year-old female who presented to the hospital with back pain, low-grade fever, and easy bruising. She was found to be bicytopenic and in disseminated intravascular coagulopathy (DIC). Surprisingly, BM biopsy showed extensive involvement by metastatic malignant melanoma in the absence of visceral or brain metastasis. The unique presentation of this case and the challenge of management of a potentially treatable cancer in a critically ill patient are discussed, alongside a review of published cases of metastatic melanoma in the BM and an exploration of currently available treatment options. The excellent response of our patient to combined immune checkpoint inhibitors has yet to be paralleled in the available literature.

Gilleran JP and Alpert SA, ed. (2018). Adult and Pediatric Neuromodulation. Cham, Springer International Publishing.

[Full Text](#)

Department of Urology

Gilleran JP and Gaines N (2018). "Pudendal neuromodulation," In Gilleran JP and Alpert SA (ed). Adult and Pediatric Neuromodulation. Cham: Springer International Publishing. pp: 89-104.

[Full Text](#)

Department of Urology

Use of the pudendal nerve in modulating pelvic floor function has drawn great interest in those who regularly perform sacral neuromodulation for overactive bladder, non-obstructive urinary retention, and fecal incontinence. Since its introduction in the early 2000s, it continues to experience a "coming of age". As a result, pudendal neuromodulation is perhaps settling into the unique role as an alternative approach to those who have failed sacral neuromodulation, or for managing some forms of chronic pelvic pain. This chapter will touch on the subtle differences between pudendal neuromodulation and other forms in animal models, but delves deep into the transperineal technique currently used by the author. We also present outcomes in smaller studies for a variety of conditions, all the while recognizing that large, multicenter, controlled studies are lacking.

Gjeorgjievski M, Reddy N, **Stecevic V** and **Cappell MS** (2018). "Abdominal abscess related to endoscopically placed AspireAssist(R) device." ACG Case Reports Journal 5: e12.

[Full Text](#)

Department of Internal Medicine

We report a 55-year-old diabetic woman with abdominal pain, pyrexia, and leukocytosis 3 months after aspiration tube placement. Abdominal computed tomography revealed a hypodense mass (10.8 x 7.2 cm) extending into the right anterior abdominal wall. Aspiration of the abscess revealed purulent fluid that grew *Streptococcus intermedius*. The aspiration tube was removed and 4 endoclips were deployed to close the intragastric stoma. The patient recovered well with 21 days of antibiotics, with resolution of the abscess and full wound healing.

Gjeorgjievski SG, **Zhang P** and Qu ZH (2018). "Establish the baseline levels of eosinophils in rectal mucosa through evaluation of prostate biopsies." American Journal of Clinical Pathology 149: S93-S93.

[Full Text](#)

Department of Pathology

Objectives: Normal eosinophils can be found as high as 35 per high power field in lamina propria of the cecum. However, number of the eosinophils appears to be reduced along the mucosa to distal colon. This might represent an antigen process of food waste involved by eosinophils. A previous study suggests that more than 10 eosinophils in the rectal mucosa may represent an allergic etiology in pediatric population but the actual mean value of eosinophils in rectal mucosa in adults remains unclear. Methods: This study was to investigate the baseline level of eosinophils in rectal mucosa from men underwent trans-rectal prostate biopsies (assuming absence of gastrointestinal symptoms in them). From 30 men with incidental "snap-out" colonic mucosa present in our archival prostatic biopsies, the high eosinophil counts in the lamina propria of rectal mucosa per high power field were recorded. Results: Mean value \pm standard error was 0.9 ± 0.26 (range 0–4 eosinophils), which was significantly lower than those of six adult positive controls (22.33 ± 3.11 , ranging from 12 to 30 eosinophils per high power field) with either inflammatory bowel disease or unknown etiology of active colitis. Conclusion: The evaluation of incidental rectal mucosa from prostate biopsies has provided us with normal range of rectal eosinophils not more than four eosinophils per high power field, compatible with a notion that rectal mucosa may be involved in less antigen processing than that of initial portion of colon (cecum).

Gladstone GJ (2018). "Blepharoptosis," In Gladstone GJ, Nesi FA and Black EH (ed). Oculoplastic Surgery Atlas: Eyelid and Lacrimal Disorders. Cham: Springer International Publishing. pp: 39-47.

[Full Text](#)

Department of Ophthalmology

Anytime the eyelid droops, blepharoptosis results. The condition is cosmetically noticeable even in the earliest stages. When significant visual field defect occurs, it becomes a functional problem. Blepharoptosis repair is one of the most common oculoplastic procedures performed. Accurate evaluation of the patient with blepharoptosis will lead the surgeon to choose an appropriate surgical procedure and minimize the incidence of complications. An understanding of the etiology of the various subtypes of eyelid ptosis is also important in surgical decision-making.

Gladstone GJ, ed. (2018). "Entropion," In Gladstone GJ, Nesi FA and Black EH (ed). Oculoplastic Surgery Atlas: Eyelid

and Lacrimal Disorders. Cham: Springer International Publishing. pp: 13-17.

[Full Text](#)

Department of Ophthalmology

Entropion, or inward rotation of the eyelid margin, is an eyelid malposition commonly seen by general ophthalmologists and oculoplastic surgeons. The severe corneal irritation secondary to contact with the lashes and keratinized epithelium of the eyelid skin brings patients in for evaluation promptly. There are four major types of entropion: congenital, acute spastic, involutional, and cicatricial. It is important to define the pathologic process in entropion to plan and achieve successful surgical repair.

Gladstone GJ (2018). "Laser skin resurfacing," In Gladstone GJ, Nesi FA and Black EH (ed). Oculoplastic Surgery Atlas : Cosmetic Facial Surgery. Cham: Springer International Publishing. pp: 51-54.

[Full Text](#)

Department of Ophthalmology

The use of lasers to reduce the effects of age and sun damage to facial skin has gained widespread acceptance (Fig. 7.1). A carbon dioxide (CO₂) laser produce controlled cutaneous exfoliation with limited damage to surrounding tissue. Their wavelengths are highly absorbed by water, the main cellular constituent. Fractioned CO₂ have mostly replaced the older full ablation CO₂ models. These lasers allow a portion of the dermis to be treated with skip areas in between. This allows more rapid reepithelialization of the skin and minimizes the duration of postoperative hyperemia. Additionally, the depth of laser penetration can be altered to treat superficial or deeper rhytides.

Gladstone GJ (2018). "Lower eyelid blepharoplasty," In Gladstone GJ, Nesi FA and Black EH (ed). Oculoplastic Surgery Atlas : Cosmetic Facial Surgery. Cham: Springer International Publishing. pp: 45-50.

[Full Text](#)

Department of Ophthalmology

Concerns about lower eyelid appearance are common in middle-aged and elderly patients. These concerns often occur in patients also undergoing evaluation for upper blepharoplasty, so it is beneficial to be able to offer these patients options for improving conditions that affect the lower eyelids. The primary cosmetic issues of the lower eyelids involve herniated orbital fat and lower eyelid rhytides, which may occur simultaneously or independently. The surgeon must consider the patient's age, appearance, skin type, and anatomy. The option of excising or repositioning herniated orbital fat or of performing direct skin excision, CO₂ laser skin resurfacing, mid-face lifting, or a combination of procedures can then be discussed with the patient. In this chapter, we describe techniques for lower eyelid evaluation, excision and repositioning herniated orbital fat, and direct lower eyelid skin excision.

Gladstone GJ (2018). "Upper eyelid blepharoplasty," In Gladstone GJ, Nesi FA and Black EH (ed). Oculoplastic Surgery Atlas : Cosmetic Facial Surgery. Cham: Springer International Publishing. pp: 37-43.

[Full Text](#)

Department of Ophthalmology

Upper eyelid blepharoplasty is a common procedure for aesthetic and functional treatment of excess eyelid skin, or dermatochalasis. A patient with this condition frequently has a combination of cosmetic and functional complaints. The initial evaluation should include the details of the patient's particular concerns. A handheld mirror is useful to help patients point out eyelid features that are bothersome to them. A complete medical and ophthalmic history, including the use of topical and systemic medications and drug sensitivities, is documented. Specifically ask the patient about aspirin and anticoagulant use. Additional historical questions should focus on dry eye symptoms, eyelid irritation or edema, and visual obscuration.

Gladstone GJ, Ekhlassi T and Winkler KP (2018). "Lacrimal disorders," In Gladstone GJ, Nesi FA and Black EH (ed). Oculoplastic Surgery Atlas: Eyelid and Lacrimal Disorders. Cham: Springer International Publishing. pp: 71-78.

[Full Text](#)

Department of Ophthalmology

Epiphora can be caused by a stenosis of the punctum and vertical canaliculus. A single vertical incision in the canaliculus will allow access to the lacrimal system, for irrigation or tube placement, but restenosis will occur promptly. A 3-snip punctoplasty removes the internal wall of the vertical canaliculus allowing similar access

and restenosis will not typically occur (Video 8.1). Mitomycin C can be applied at the end of the procedure to increase the success rate.

Gladstone GJ and Nesi FA (2018). "Eyelid reconstruction," In Gladstone GJ, Nesi FA and Black EH (ed). Oculoplastic Surgery Atlas: Eyelid and Lacrimal Disorders. Cham: Springer International Publishing. pp: 49-65.

[Full Text](#)

Department of Ophthalmology

Eyelid defects require precise closure to maintain proper function and appearance of the eye. Repair of the defects depends on their location and extent. Superficial tissue involving the skin and orbicularis may require simple closure or development of flaps or grafts. Full-thickness eyelid injury requires precise assessment of available surrounding tissue and closure of the lid at several levels. Deeper injury to the orbit may involve exploration and repair of the lacrimal drainage system, orbital bones, or the globe itself. Evaluation and repair of these delicate structures requires a fundamental knowledge of the regional anatomy as well as a thorough understanding of reconstructive techniques.

Gladstone GJ, Nesi FA and Black EH, eds. (2018). Oculoplastic Surgery Atlas. Cham, Springer International Publishing.

[Full Text](#)

Department of Ophthalmology

Gladstone GJ, Nesi FA, Nesi-Eloff F and Castillo F (2018). "Ectropion," In Gladstone GJ, Nesi FA and Black EH (ed). Oculoplastic Surgery Atlas: Eyelid and Lacrimal Disorders. Cham: Springer International Publishing. pp: 19-25.

[Full Text](#)

Department of Ophthalmology

Ectropion, or turning out of the eyelid margin, is a common eyelid malposition. Ectropion of the lower eyelid may result from several entirely different pathologic processes. The major types of ectropion are involuntional, cicatricial, paralytic, and mechanical. These are all managed differently and are discussed as separate entities.

Grant KD, Busse EC, Park DK and Baker KC (2018). "Internal fixation of osteoporotic bone." Journal of the American Academy of Orthopaedic Surgeons 26(5): 166-174.

[Full Text](#)

Department of Orthopedic Surgery

Osteoporosis is one of the costliest conditions managed by orthopaedic surgeons. This condition, which is characterized by decreased bone density and thinning of cortical bone, is strongly influenced by complex signaling in both the hormonal and mechanical environments. Osteoporosis cannot be cured; instead, it can only be managed to decrease patient morbidity. Current pharmacologic treatments are aimed at minimizing bone turnover and have substantial side effects. Therefore, much work remains to find safer and more effective agents to restore bone density. In addition to the high incidence of fracture in elderly patients, many of the traditional fixation constructs used for repair of these fractures are not suitable for use in osteoporotic bone. Increased use of fixed-angle locking plates, intramedullary devices, and bone substitutes has greatly improved outcomes in these patients.

Greene JJ, **Naumann IC**, Poulik JM, Nella KT, Weberling L, Harris JP and Matsuoka AJ (2018). "The protean neuropsychiatric and vestibuloauditory manifestations of neurosarcoidosis." Audiology and Neurotology 22(4-5): 205-217.

[Request Form](#)

Department of Surgery

Background: A rare subset of sarcoidosis, neurosarcoidosis, is reported to occur in 5-7% of sarcoid patients and can manifest in a variety of ways. The most common are facial paralysis and optic neuritis, less commonly causing cochleovestibulopathy, blindness, anosmia, and other cranial nerve (CN) palsies. The sensory deficit may be severe and psychiatric symptoms may result from the effects of the disease or steroid treatment. Although MRI-compatible cochlear implants are now available, concerns about the feasibility of recoverable hearing with cochlear implantation in these patients as well as the practical difficulty of disease monitoring due to implant artifact must be considered. Results: We present 3 recent cases from different

institutions. The first is a 39-year-old man with a history of progressively worsening hearing loss, followed by visual loss, delusions, agitation, ataxia, and musical auditory hallucinations, diffuse leptomeningeal enhancement on MRI with a normal serum angiotensin-converting enzyme (ACE) level but elevated cerebrospinal fluid (CSF) ACE levels, suggesting neurosarcoidosis, was treated with corticosteroids, and underwent successful cochlear implantation. The second is a 36-year-old woman with rapid-onset horizontal diplopia, left mixed severe sensorineural hearing loss (SNHL) and tinnitus, diffuse leptomeningeal enhancement on MRI, and progressive palsy of the left CNs IV, VI, VII, IX, X and XI, with altered mental status requiring admission following high-dose intravenous corticosteroids. The third is a 15-year-old boy who presented with sudden, bilateral, profound SNHL, recurrent headaches, and left facial weakness refractory to antivirals, ultimately diagnosed with neurosarcoidosis following an aborted cochlear implantation where diffuse inflammation was found, and histopathology revealed Schaumann bodies; he was treated with methotrexate and later underwent successful cochlear implantation. Conclusions: Neurosarcoidosis is an elusive diagnosis and can cause hearing loss and psychiatric symptoms. Cochlear implantation for patients with severe hearing loss should be considered once the diagnosis is confirmed, as it is possible to achieve a successful level of hearing. Psychiatric symptoms can manifest with the onset of neurosarcoidosis, result from CN deficits, or develop as a side effect from long-term, high-dose corticosteroids, and should be monitored carefully in patients with neurosarcoidosis.

Gunasekaran K, Ahmad MR, **Dalal B** and Edmonds L (2018). "Resolution of osseous sarcoidosis with steroids." [BMJ Case Reports](#) 2018.

[Full Text](#)

Department of Internal Medicine

Gupta A and **Li W** (2018). "Clinicopathologic study of isolated colitis in periappendiceal orifice region: Further evidence of association with nonsteroidal anti-inflammatory drugs." [American Journal of Clinical Pathology](#) 149: S152-S153.

[Full Text](#)

Department of Pathology

Introduction: Nonsteroidal anti-inflammatory drugs (NSAIDs) have been known to cause various gastrointestinal symptoms and histopathological changes. Limited evidence shows association of NSAID usage with isolated colitis in periappendiceal orifice region. This study evaluated the clinicopathologic features of 17 patients with isolated colitis limited to the periappendiceal orifice region. Materials and Methods: A retrospective review was performed on biopsy specimens from 17 patients (ranging from 19 to 76 years of age, with male to female ratio of 1.5:1.0) with histologically proven colitis (focal active colitis with no significant chronicity) limited to the cecum or periappendiceal orifice. No pathological abnormalities were identified in adjacent terminal ileum or other parts of colon in all these cases. Patients with history of colorectal tumor or inflammatory bowel diseases were excluded from the study. Relevant clinical history, endoscopic findings, and follow-up study were evaluated. Results: The main endoscopic findings included erythema, focal inflammation, erosion, and ulcerations in the cases studied. Among 17 cases, seven cases (41%) had documented histories of regular NSAID intake. Five of these seven patients demonstrated resolution of pathological abnormality after cessation of the drugs on repeated colonoscopy. Nine patients (53%) gave a history of occasional NSAIDs usage. One patient of these nine developed persistent lower gastrointestinal tract symptoms. None of the studied patients were found to have any infectious disease of gastrointestinal tract or inflammatory bowel disease, even on follow-up examination. Conclusion: Our results confirm the previously reported findings of a close association of isolated colitis in periappendiceal orifice region with NSAIDs. Our data further suggest that pathological changes of the isolated colitis are reversible after the cessation of the NSAIDs.

Gupta A and **Sundram U** (2018). "Cutaneous lymphoma." [Journal of Clinical Pathology](#) 71(2): 185.

[Request Form](#)

Department of Pathology

Gupta A, **Zhang P**, **Amin M** and **Li W** (2018). "Malignant transformation of a retroperitoneal completely isolated enteric duplication cyst." [American Journal of Clinical Pathology](#) 149: S48-S49.

[Full Text](#)

Department of Pathology

Completely isolated enteric duplication cysts (CIDC) are extremely rare congenital malformations that are more common in younger male patients. They are predominantly intraabdominal and account for approximately one in 10,000 live births. They have no connection to the gastrointestinal tract (GIT) and possess a dedicated vascular pedicle. They are uncommon variants of true duplication cysts, which themselves are characterized by the presence of gastrointestinal mucosal epithelial lining, attachment to the adjacent GIT, presence of smooth muscle in the wall, and sharing of blood supply with the native bowel. Malignant transformation is very infrequent. Henceforth, we describe an unusual case of retroperitoneal CIDC with transformation to mucinous cystadenocarcinoma in an elderly woman. A 64-year-old woman presented with complaints of abdominal pain, which was later diagnosed as a retroperitoneal non-communicating isolated duplication cyst. It was confused with renal cell carcinoma on imaging. Left-sided kidney, along with the adjacent cystic mass, was excised. Grossly, the complex cyst was separated from the kidney by a 1 mm fibroconnective tissue. On histology, the cyst wall had an enteric mucosal lining with presence of smooth muscle layers below the epithelium. The epithelial lining showed transformation to high-grade dysplasia and ultimately mucinous cystadenocarcinoma. The kidney showed no significant pathologic abnormalities. On immunohistochemical staining, the diagnosis was confirmed by expression of CDX2, CK7, CK20, MUC1, MUC6, and P504S, but was negative for MUC2, ER, and WT-1. This rare entity is not well-known but can be diagnosed and treated easily. It can have a high-risk of transformation to malignancy if left untreated, although it is unusual. Also, unlike true duplication cyst, it can be surgically resected without disturbing the adjacent bowel. Therefore, awareness of the lesion, with early and appropriate diagnosis, is essential for improved patient prognosis.

Hafeez A, Karmo D, Mercado-Alamo A and **Halalau A** (2018). "Aortic dissection presenting as acute pancreatitis: Suspecting the unexpected." Case Reports in Cardiology 2018: 4.

[Full Text](#)

Department of Internal Medicine

Aortic dissection is a life-threatening condition in which the inner layer of the aorta tears. Blood surges through the tear, causing the inner and middle layers of the aorta to separate (dissect). It is considered a medical emergency. We report a case of a healthy 56-year-old male who presented to the emergency room with sudden onset of epigastric pain radiating to his back. His blood pressure was 167/91 mmHg, equal in both arms. His lipase was elevated at 1258 U/L, and he was clinically diagnosed with acute pancreatitis (AP). He denied any alcohol consumption, had no evidence for gallstones, and had normal triglyceride level. Two days later, he endorsed new suprapubic tenderness radiating to his scrotum, along with worsening epigastric pain. A MRCP demonstrated evidence of an aortic dissection (AD). CT angiography demonstrated a Stanford type B AD extending into the proximal common iliac arteries. His aortic dissection was managed medically with rapid blood pressure control. The patient had excellent recovery and was discharged home without any surgical intervention.

Halka JT, Vasyluk A, **DeMare AM, Janczyk RJ and Iacco AA** (2018). "Robotic and hybrid robotic transversus abdominis release may be performed with low length of stay and wound morbidity." The American Journal of Surgery 215(3): 462-465.

[Full Text](#)

OUWB Medical Student Author

Department of Surgery

The objective of our study was to compare length of stay and wound complications after hybrid robotic transversus abdominis release (hrTAR) vs. robotic transversus abdominis release (rTAR) Two cohorts of patients undergoing robotic (rTAR) and hybrid robotic (hrTAR) performed by two surgeons at a single institution were analyzed. Mean length of stay (LOS) and incidence of surgical site occurrences (SSO) were compared. 57 patients undergoing rTAR and 25 patients undergoing hrTAR were analyzed. The hrTAR group had larger mean hernia dimensions and a larger proportion of men but otherwise the patient cohorts were similar. LOS was not statistically different between rTAR and hrTAR (2.8 vs 3.7 days p = 0.06). We found no difference in incidence of surgical site occurrences between the two groups (7.0% vs 4.0% p = 0.52). Hybrid robotic assisted TAR allows for repair of complex ventral hernias with similar lengths of stay and wound

morbidity to pure robotic repairs.

Han E, Nguyen L, **Sirls L** and **Peters K** (2018). "Current best practice management of interstitial cystitis/bladder pain syndrome." *Therapeutic Advances in Urology* 10(7): 197-211.

[Full Text](#)

Department of Urology

Introduction: Over the last 100 years, the terminology and diagnosis criteria for interstitial cystitis have evolved. Many therapeutic options have changed, but others have endured. This article will review the idea of separating 'classic' Hunner lesion interstitial cystitis (HL IC) from non-Hunner lesion interstitial cystitis and bladder pain syndrome (N-HL IC/BPS) and their respective treatment algorithms. Methods/Results: A literature search was performed to identify articles and research on HL IC and N-HL IC/BPS including definitions, etiological theories, and treatments. This article is an overview of the existing literature. We also offer insight into how HL IC and N-HL IC/BPS are approached at our tertiary referral center. Additionally, American Urological Association guidelines have been integrated and newer treatment modalities and research will be introduced at the conclusion. Conclusion: The AUA guidelines have mapped out a stepwise fashion to treat IC/BPS; at our institution we separate patients with HL IC from those with N-HL IC/BPS prior to them entering a treatment pathway. We identify the rarer patient with HL as having classic 'IC'; this cystoscopic finding is critical in guiding treatment. We believe HL IC is a distinct disease from N-HL IC/BPS and therapy should focus on the bladder. The vast majority of patients with N-HL IC/BPS need management of their pelvic floor muscles as the primary therapy, complemented by bladder-directed therapies as needed as well as a multidisciplinary team to manage a variety of other regional/systemic symptoms. Ongoing research into IC/BPS will help us better understand the pathophysiology and phenotypes of this complex disease while exciting and novel research studies are developing promising treatments.

Hanson ID, Dalal PK, Renard BM, **Hanzel GS** and Vivacqua A (2018). "Emergency valve-in-valve transcatheter aortic valve implantation for the treatment of acute stentless bioprosthetic aortic insufficiency and cardiogenic shock." *Case Reports in Cardiology* 2018: 5.

[Full Text](#)

Department of Internal Medicine

Bioprosthetic aortic valve degeneration may present as acute, severe aortic regurgitation and cardiogenic shock. Such patients may be unsuitable for emergency valve replacement surgery due to excessive risk of operative mortality but could be treatable with transfemoral valve-in-valve transcatheter aortic valve implantation (TAVI). There is a paucity of data regarding the feasibility of valve-in-valve TAVI in patients presenting with cardiogenic shock due to acute aortic insufficiency from stentless bioprosthetic valve degeneration. We present one such case, highlighting the unique aspects of valve-in-valve TAVI for this challenging patient subset.

Ho A, Kurdziel MD, Koueiter DM and **Wiater JM** (2018). "Three-dimensional computed tomography measurement accuracy of varying Hill-Sachs lesion size." *Journal of Shoulder and Elbow Surgery* 27(2): 350-356.

[Full Text](#)

Department of Orthopedic Surgery

Background: The glenoid track concept has been proposed to correlate shoulder stability with bone loss. Accurate assessment of Hill-Sachs lesion size preoperatively may affect surgical planning and postoperative outcomes; however, no measurement method has been universally accepted. This study aimed to assess the accuracy and reliability of measuring Hill-Sachs lesion sizes using 3-dimensional (3D) computed tomography (CT). Methods: Nine polyurethane humerus bone substitutes were used to create Hill-Sachs lesions of varying sizes with a combination of lesion depth (shallow, intermediate, and deep) and width (small, medium, and large). Specimens were scanned with a clinical CT scanner for size measurements and a micro-CT scanner for measurement of true lesion size. Six evaluators repeated measurements twice in a 2-week interval. Scans were measured by use of 3D CT reconstructions for length, width, and Hill-Sachs interval and with use of 2D CT for depth. The interclass correlation coefficient evaluated interobserver and intraobserver variability and percentage error, and Student t-tests assessed measurement accuracy. Results: Interclass correlation coefficient reliability demonstrated strong agreement for all variables measured (0.856-0.975). Percentage error between measured length and measured depth and the true measurement significantly

varied with respect to both lesion depth (P = .003 and P = .005, respectively) and lesion size (P = .049 and P = .004, respectively). Discussion and conclusions: The 3D CT imaging is effective and reproducible in determining lesion size. Determination of Hill-Sachs interval width is also reliable when it is applied to the glenoid track concept. Measured values on 3D and 2-dimensional imaging using a conventional CT scanner may slightly underestimate true measurements.

Holden TR, Shah MN, Gibson TA, Weiss RE, Yagapen AN, Malveau SE, Adler DH, **Bastani A**, Baugh CW, Caterino JM, **Clark CL**, Diercks DB, Hollander JE, Nicks BA, Nishijima DK, Stiffler KA, Storrow AB, Wilber ST and Sun BC (2018). "Outcomes of patients with syncope and suspected dementia." *Academic Emergency Medicine* 25(8): 880-890.

[Full Text](#)

Department of Emergency Medicine

Abstract Objectives Syncope and near-syncope are common in patients with dementia and a leading cause of emergency department (ED) evaluation and subsequent hospitalization. The objective of this study was to describe the clinical trajectory and short-term outcomes of patients who presented to the ED with syncope or near-syncope and were assessed by their ED provider to have dementia. **Methods** This multisite prospective cohort study included patients 60 years of age or older who presented to the ED with syncope or near-syncope between 2013 and 2016. We analyzed a subcohort of 279 patients who were identified by the treating ED provider to have baseline dementia. We collected comprehensive patient-level, utilization, and outcomes data through interviews, provider surveys, and chart abstraction. Outcome measures included serious conditions related to syncope and death. **Results** Overall, 221 patients (79%) were hospitalized with a median length of stay of 2.1 days. A total of 46 patients (16%) were diagnosed with a serious condition in the ED. Of the 179 hospitalized patients who did not have a serious condition identified in the ED, 14 (7.8%) were subsequently diagnosed with a serious condition during the hospitalization, and an additional 12 patients (6.7%) were diagnosed postdischarge within 30 days of the index ED visit. There were seven deaths (2.5%) overall, none of which were cardiac-related. No patients who were discharged from the ED died or had a serious condition in the subsequent 30 days. **Conclusions** Patients with perceived dementia who presented to the ED with syncope or near-syncope were frequently hospitalized. The diagnosis of a serious condition was uncommon if not identified during the initial ED assessment. Given the known iatrogenic risks of hospitalization for patients with dementia, future investigation of the impact of goals of care discussions on reducing potentially preventable, futile, or unwanted hospitalizations while improving goal-concordant care is warranted.

Ibrahim M, Yadav S, Ogunleye F and **Zakalik D** (2018). "Male BRCA mutation carriers: Clinical characteristics and cancer spectrum." *BMC Cancer* 18(1): 179.

[Full Text](#)

Department of Internal Medicine

Mutations in BRCA1 and BRCA2 (BRCA1/2) genes are associated with an increased risk of breast and ovarian cancers in women. The cancer characteristics of men with BRCA1/2 mutations are less well studied. This study describes the unique cancer characteristics of male BRCA1/2 mutation carriers at our institution.

Jae SY, Bunsawat K, Choi Y-H, Kim YS, Touyz RM, Park JB and **Franklin BA** (2018). "Relation of serum uric acid to an exaggerated systolic blood pressure response to exercise testing in men with normotension." *The Journal of Clinical Hypertension* 20(3): 551-556.

[Full Text](#)

Department of Internal Medicine

The authors investigated the hypothesis that high serum uric acid concentrations may be related to an exaggerated systolic blood pressure (SBP) response to maximal exercise testing in men with normotension, independent of potential confounding variables. In 4640 healthy men with normotension who underwent maximal treadmill exercise testing and fasting blood chemistry studies, including serum uric acid concentrations, an exaggerated SBP response, defined as SBP \geq 210 mm Hg, was detected in 152 men (3.3%). After adjusting for potential confounders, participants in the highest quartile of serum uric acid (>6.6 mg/dL) had a higher odds ratio of demonstrating an exaggerated SBP to maximal exercise (odds ratio, 2.19; 95% confidence interval, 1.24–3.86) compared with participants in the lowest quartile of serum uric acid (<5.1 mg/dL). High serum uric acid concentrations are associated with an exaggerated SBP response to

maximal exercise testing in men with normotension, independent of established coronary risk factors.

Jayaraman A, Kumar P, Marin S, De Atauri P, Mateo F, Thomson TM, Centelles JJ, **Graham SF** and Cascante M (2018). "Untargeted metabolomics reveals distinct metabolic reprogramming in endothelial cells co-cultured with CSC and non-CSC prostate cancer cell subpopulations." *PLoS ONE* 13(2).

[Full Text](#)

Department of Obstetrics and Gynecology

Tumour angiogenesis is an important hallmark of cancer and the study of its metabolic adaptations, downstream to any cellular change, can reveal attractive targets for inhibiting cancer growth. In the tumour microenvironment, endothelial cells (ECs) interact with heterogeneous tumour cell types that drive angiogenesis and metastasis. In this study we aim to characterize the metabolic alterations in ECs influenced by the presence of tumour cells with extreme metastatic abilities. Human umbilical vein endothelial cells (HUVECs) were subjected to different microenvironmental conditions, such as the presence of highly metastatic PC-3M and highly invasive PC-3S prostate cancer cell lines, in addition to the angiogenic activator vascular endothelial growth factor (VEGF), under normoxia. Untargeted high resolution liquid chromatography-mass spectrometry (LC-MS) based metabolomics revealed significant metabolite differences among the various conditions and a total of 25 significantly altered metabolites were identified including acetyl L-carnitine, NAD⁺, hypoxanthine, guanine and oleamide, with profile changes unique to each of the experimental conditions. Biochemical pathway analysis revealed the importance of fatty acid oxidation and nucleotide salvage pathways. These results provide a global metabolic preview that could help in selectively targeting the ECs aiding in either cancer cell invasion or metastasis in the heterogeneous tumour microenvironment.

Jayaschandran V, Mertens AN, **Patel VK** and **Dalal B** (2018). "Life-threatening massive hemoptysis after cryoablation for atrial fibrillation." *Journal of Bronchology & Interventional Pulmonology* 25(1): 67-69.

[Full Text](#)

Department of Internal Medicine

A 59-year-old man developed massive hemoptysis, 1 month after undergoing cryoablation procedure for atrial fibrillation. He underwent emergent bronchoscopy that revealed massive, active bleeding with clots requiring repeated suctioning, epinephrine, and cold saline injection. The source of bleeding was identified in a follow-up bronchoscopy performed few days later—a 2×3 cm area of ulceration of the left main stem bronchus which was missed in the initial bronchoscopy owing to blood obscuring the field of vision. Considering the timeline, the ulcer most likely resulted from cryoablation-induced bronchial injury. Patient remained asymptomatic after stabilization and 2 months following discharge, another bronchoscopy was performed which showed the ulcer to be healing. Hemoptysis following cryoablation is quite rare with a reported incidence <2%. The cases of hemoptysis reported thus far have all been mild and self-limiting and manifesting within hours to days following the procedure. To our knowledge, this is the first reported case of massive hemoptysis associated with cryoballoon ablation, presenting 1 month after procedure.

Joyce BL and Dougherty PJ, eds. (2018). *The Orthopedic Educator*. Cham, Springer International Publishing.

[Full Text](#)

Department of Foundational Medical Studies

This concise pocket guide is the first of its kind to provide a solid foundation for those who are involved in academic orthopedic surgery education for medical students, residents, and faculty and program heads. Opening with an exploration of the history of orthopedic education in the United States as well as a sampling of international experiences, the book then describes curriculum design for competency-based education, teaching as coaching, and how to teach operative skills. A trio of chapters on working with residents covers the sometimes challenging areas of assessment, remediation and providing constructive feedback. Subsequent chapters detail the development of orthopedic faculty and elements of successful programs as well as tips for directors creating or maintaining a program. While several books exist to guide educators in the non-surgical fields, none exist to provide guidance for surgical fields, much less orthopedic surgery. Ideal for any and all professionals involved in orthopedic education, *The Orthopedic Educator* serves to offer insight for making the most out of the time available for teaching, offering advice from experienced educators on how to build and maintain a successful program.

Joyce BL and Dougherty PJ (2018). "Conclusion," In Dougherty PJ and Joyce BL (ed). The Orthopedic Educator: A Pocket Guide. Cham: Springer International Publishing. pp: 209-210.

[Full Text](#)

Department of Foundational Medical Studies

We hope this book has provided a wide range of practical ideas that can be implemented in your program, and stimulated your thinking about orthopaedic surgery education. Orthopaedic surgery training has been experiencing a transformational shift from an apprenticeship model of education to a competency-based model of education. The Orthopaedic Educator: A Pocket Guide was designed to provide orthopaedic surgery faculty and program directors with an easy-to-use, practical, and concise guide focused on orthopaedic surgery education that would help program directors and faculty navigate this change. Chapters on curricular design and methods of assessment highlighted frameworks that can be used to design outcome-based training programs. Innovative ideas, such as the chapter on a Musculoskeletal Medicine Clerkship, highlight the evolution of third-year training of medical students.

Joyce BL and McHale K (2018). "Curriculum design for competency-based education in orthopaedics," In Dougherty PJ and Joyce BL (ed). The Orthopedic Educator: A Pocket Guide. Cham: Springer International Publishing. pp: 45-60.

[Full Text](#)

Department of Foundational Medical Studies

This chapter provides program directors and faculty with a systematic, stepwise process to create competency-based curricula for rotations or educational experiences. Creating competency-based program goals, rotation goals, and objectives can be daunting, but important tasks, which focus trainees and faculty on content and educational outcomes pertinent to the rotational experience. As the surgical world becomes more subspecialized, residency training and, therefore, the curriculum must remain an inclusive, encompassing teaching of principles that will sustain the surgeon through his/her future. New surgeons will have to adjust to increases in knowledge and technology, as well as develop the ability to "think on their feet." The process for writing rotational curriculum and curriculum for educational experiences, such as a simulation course, should follow the principles and process described below. Backward design is an instructional design model that may offer some solutions to program directors charged with writing competency-based rotation curricula or curricula for educational experiences. Backward design principles begin with identifying educational outcomes and working backwards to design curriculum.

Karmo D, Hafeez A, **Halalau A** and Yadav S (2018). "Cardiac tamponade as the initial presentation of acute myeloid leukemia: A case report with review of the literature." Case Reports in Oncological Medicine 2018: 8201917.

[Full Text](#)

Department of Internal Medicine

Acute myeloid leukemia (AML) is a complex disease with a variety of presentations. A large pericardial effusion is rare, occurring in less than 0.5% of all patients with AML prior to treatment. A 34-year-old male presented with dyspnea, malaise, and weight loss. On physical exam, he was noted to be hypoxic, tachypneic, tachycardic, and hypotensive. He had cervical lymphadenopathy and jugular venous distention. His WBC count was 110 bil/L with 33% blasts. Bone marrow biopsy confirmed AML with 60% blasts. Leukemic cells were also seen in the cerebrospinal fluid on lumbar puncture. An echocardiogram revealed a large pericardial effusion causing tamponade. He underwent emergent pericardiocentesis, and malignant cells were present in the pericardial fluid. Induction therapy with standard dose cytarabine and daunorubicin was initiated, and bone marrow biopsy 14 days later showed no residual AML. This case demonstrates the importance of a thorough evaluation of each organ system when caring for a patient with AML.

Keihani S, Xu Y, Presson AP, Hotaling JM, Nirula R, Piotrowski J, Dodgion CM, Black CM, Mukherjee K, Morris BJ, Majercik S, Smith BP, Schwartz I, Elliott SP, Desoucy ES, Zakaluzny S, Thomsen PB, Erickson BA, Baradaran N, Breyer BN, Miller B, Santucci RA, Carrick MM, **Hewitt T**, **Burks FN**, Kocik JF, Askari R and Myers JB (2018). "Contemporary management of high-grade renal trauma: Results from the American Association for the Surgery of Trauma Genitourinary Trauma study." Journal of Trauma and Acute Care Surgery 84(3): 418-425.

[Full Text](#)

OUIWB Medical Student Author

Department of Urology

BACKGROUND The rarity of renal trauma limits its study and the strength of evidence-based guidelines. Although management of renal injuries has shifted toward a nonoperative approach, nephrectomy remains the most common intervention for high-grade renal trauma (HGRT). We aimed to describe the contemporary management of HGRT in the United States and also evaluate clinical factors associated with nephrectomy after HGRT. **METHODS** From 2014 to 2017, data on HGRT (American Association for the Surgery of Trauma grades III-V) were collected from 14 participating Level-1 trauma centers. Data were gathered on demographics, injury characteristics, management, and short-term outcomes. Management was classified into three groups—expectant, conservative/minimally invasive, and open operative. Descriptive statistics were used to report management of renal trauma. Univariate and multivariate logistic mixed effect models with clustering by facility were used to look at associations between proposed risk factors and nephrectomy. **RESULTS** A total of 431 adult HGRT were recorded; 79% were male, and mechanism of injury was blunt in 71%. Injuries were graded as III, IV, and V in 236 (55%), 142 (33%), and 53 (12%), respectively. Laparotomy was performed in 169 (39%) patients. Overall, 300 (70%) patients were managed expectantly and 47 (11%) underwent conservative/minimally invasive management. Eighty-four (19%) underwent renal-related open operative management with 55 (67%) of them undergoing nephrectomy. Nephrectomy rates were 15% and 62% for grades IV and V, respectively. Penetrating injuries had significantly higher American Association for the Surgery of Trauma grades and higher rates of nephrectomy. In multivariable analysis, only renal injury grade and penetrating mechanism of injury were significantly associated with undergoing nephrectomy. **CONCLUSION** Expectant and conservative management is currently utilized in 80% of HGRT; however, the rate of nephrectomy remains high. Clinical factors, such as surrogates of hemodynamic instability and metabolic acidosis, are associated with nephrectomy for HGRT; however, higher renal injury grade and penetrating trauma remain the strongest associations. **LEVEL OF EVIDENCE** Prognostic/epidemiologic study, level III; Therapeutic study, level IV.

Khan G, Karabon P and **Lerchenfeldt S** (2018). "Use of prescription assistance programs after the Affordable Health Care Act." *Journal of Managed Care and Specialty Pharmacy* 24(3): 247-251.

[Full Text](#)

OWUB Medical Student Author

Department of Foundational Medical Studies

BACKGROUND: Insurance coverage in the United States seems to be in a state of unrest. The 2010 passage of the Patient Protection and Affordable Health Care Act (ACA) extended health insurance coverage to roughly 32 million people. An increase in the number of people with health insurance benefits raised the question of whether prescription assistance programs (PAPs) would still be used after ACA implementation. **OBJECTIVE:** To evaluate the use of PAPs following the implementation of the ACA insurance mandate. **METHODS:** Health insurance was not required by the ACA until January 2014, so we retrospectively examined the use of drug company-sponsored PAPs before and after the ACA implementation. Since each PAP had its own qualifying criteria, any person who used a PAP through the assistance of NeedyMeds and its PAPTracker between the years of 2011 and 2016 were included for analysis. Data were pulled by NeedyMeds from the PAPTracker software, which produces completed PAP applications from drug manufacturer forms for PAPs. The number of PAP orders, number of unique patient orders, and annual patient prescription savings were assessed. **RESULTS:** Between 2011 and 2013, there was an average of 4.2 annual PAP orders per patient; however, annual PAP orders decreased to 3.1 per patient between 2014 and 2016 ($P < 0.001$). PAP orders declined by an average of 3.0% per month between 2014 and 2016 ($P < 0.001$), and average prescription savings per order increased from \$870.40 before the ACA to \$1,086.40 after ACA implementation ($P = 0.0024$). Patients saved an average of over \$3,000 on prescriptions annually with the use of PAPs after the ACA mandate. **CONCLUSIONS:** Although health care reform is inevitable, our study showed that PAPs remain important to help cover prescription drug costs for eligible patients, even with invariable changes to health insurance, including a health insurance requirement. While the ACA may have been an important step forward in extending health insurance coverage to millions, PAPs are still used to help U.S. patients obtain their medications at no cost or very low cost. These programs will most likely remain relevant until other approaches are taken to help alleviate the effects of increasing drug prices in the United States.

Khan A-M, Patel SR, Mansouri M and Singh A (2018). "Imaging of acute head emergencies," In Singh A (ed).

Emergency Radiology: Imaging of Acute Pathologies. Cham: Springer International Publishing. pp: 241-259.

[Full Text](#)

Department of Diagnostic Radiology and Molecular Imaging

In the management of acute intracranial emergencies, triage of patients is key, and therefore, the proper diagnosis on early imaging can go a long way in directing the appropriate workup and management. In this chapter we will discuss the high-yield acute head emergencies. Pseudo-subarachnoid hemorrhage can mimic subarachnoid hemorrhage and radiologists should be familiar with these potential mimics of SAH.

Killinger KA, **Fergus J**, Edwards L, Boura JA, **Bartley J**, Gupta P, Tomakowsky J, **Gillera J** and **Peters KM** (2018). "Coexisting depressive symptoms do not limit the benefits of chronic neuromodulation: A study of over 200 patients." Neurourology and Urodynamics 37(2): 815-822.

[Full Text](#)

OUWB Medical Student Author

Department of Urology

Aims: To examine the relationship between coexisting depressive symptoms and outcomes after staged neuromodulation procedures for refractory urological symptoms. **Methods:** Adults who enrolled in a prospective database and completed a Personal Health Questionnaire Depression Scale (PHQ-8) at baseline were reviewed. The PHQ-8 and Generalized Anxiety Disorder (GAD-7) assessed depressive/anxiety symptoms pre and 6 months post device implant. Urological symptoms were assessed with The Interstitial Cystitis Symptom Index/Problem Index (ICSI-PI) and Overactive Bladder Questionnaire (OAB-q) at baseline, 3 and 6 months, and Global Response Assessments (GRA) post implant. Subjects, grouped by PHQ <10 and PHQ ≥10, were compared with Pearson's Chi-square, Fisher's Exact or Wilcoxon rank test, and Spearman's correlations. **Results:** In 117 PHQ <10 and 84 PHQ ≥10 patients, age differed (mean 59 vs 52 years; P = 0.001), and PHQ <10 had lower GAD-7, ICSI-PI, and OAB-q scores at baseline (P < 0.0001, P = 0.0003, and P < 0.0008, respectively). Implantation rates were similar between groups. Reoperation and complication rates within the first 6 months did not differ, similar proportions (majority) were improved on the GRA at each time point, and ICSI-PI and OAB-q scores improved significantly. PHQ scores only improved significantly for those with baseline PHQ ≥10. Baseline PHQ strongly correlated with GAD-7 at baseline and 6 months, and baseline ICSI-PI. Change in PHQ positively correlated with the change in GAD-7, 6 month ICSI-PI, and change in ICSI-PI from baseline to 6 months. **Conclusions:** Coexisting depressive symptoms do not limit the efficacy of neuromodulation and PHQ improvements correlate with improved anxiety and bladder symptoms.

Kim SJ, Huzarski T, Gronwald J, Singer CF, Møller P, Lynch HT, Armel S, Karlan BY, Foulkes WD, Neuhausen SL, Senter L, Eisen A, Eng C, Panchal S, Pal T, Olopade O, **Zakalik D**, Lubinski J, Narod SA, Kotsopoulos J and Hereditary Breast Cancer Clinical Study G (2018). "Prospective evaluation of body size and breast cancer risk among BRCA1 and BRCA2 mutation carriers." International Journal of Epidemiology 47(3): 987-997.

[Full Text](#)

Department of Internal Medicine

Background Although evidence suggests that larger body size in early life confers lifelong protection from developing breast cancer, few studies have investigated the relationship between body size and breast cancer risk among BRCA mutation carriers. Therefore, we conducted a prospective evaluation of body size and the risk of breast cancer among BRCA mutation carriers. **Methods** Current height and body mass index (BMI) at age 18 were determined from baseline questionnaires. Current BMI and weight change since age 18 were calculated from updated biennial follow-up questionnaires. Cox proportional hazards models were used to estimate the hazard ratio (HR) and 95% confidence interval (CI). **Results** Among 3734 BRCA mutation carriers, there were 338 incident breast cancers over a mean follow-up of 5.5 years. There was no association between height, current BMI or weight change and breast cancer risk. Women with BMI at age 18 ≥22.1 kg/m² had a decreased risk of developing post-menopausal breast cancer compared with women with a BMI at age 18 between 18.8 and 20.3 kg/m² (HR 0.49; 95% CI 0.30–0.82; P = 0.006). BMI at age 18 was not associated with risk of pre-menopausal breast cancer. **Conclusions** There was no observed association between height, current BMI and weight change and risk of breast cancer. The inverse relationship between greater BMI at age 18 and post-menopausal breast cancer further supports a role of early rather than current or adulthood exposures for BRCA-associated breast cancer development. Future studies with longer follow-up and additional measures of adiposity are necessary to confirm these findings.

Kishan AU, Cook RR, Ciezki JP, Ross AE, Pomerantz MM, Nguyen PL, Shaikh T, Tran PT, Sandler KA, Stock RG, Merrick GS, Demanes DJ, Spratt DE, Abu-Isa EI, Wedde TB, Lilleby W, **Krauss DJ**, Shaw GK, Alam R, Reddy CA, Stephenson AJ, Klein EA, Song DY, Tosoian JJ, Hegde JV, Yoo SM, Fiano R, D'Amico AV, Nickols NG, Aronson WJ, Sadeghi A, Greco S, Deville C, McNutt T, DeWeese TL, Reiter RE, Said JW, Steinberg ML, Horwitz EM, Kupelian PA and King CR (2018). "Radical prostatectomy, external beam radiotherapy, or external beam radiotherapy with brachytherapy boost and disease progression and mortality in patients with gleason score 9-10 prostate cancer." JAMA - Journal of the American Medical Association 319(9): 896-905.

[Full Text](#)

Department of Radiation Oncology

IMPORTANCE The optimal treatment for Gleason score 9-10 prostate cancer is unknown. **OBJECTIVE** To compare clinical outcomes of patients with Gleason score 9-10 prostate cancer after definitive treatment. **DESIGN, SETTING, AND PARTICIPANTS** Retrospective cohort study in 12 tertiary centers (11 in the United States, 1 in Norway), with 1809 patients treated between 2000 and 2013. **EXPOSURES** Radical prostatectomy (RP), external beam radiotherapy (EBRT) with androgen deprivation therapy, or EBRT plus brachytherapy boost (EBRT+BT) with androgen deprivation therapy. **MAIN OUTCOMES AND MEASURES** The primary outcome was prostate cancer-specific mortality; distant metastasis-free survival and overall survival were secondary outcomes. **RESULTS** Of 1809 men, 639 underwent RP, 734 EBRT, and 436 EBRT+BT. Median ages were 61, 67.7, and 67.5 years; median follow-up was 4.2, 5.1, and 6.3 years, respectively. By 10 years, 91 RP, 186 EBRT, and 90 EBRT+BT patients had died. Adjusted 5-year prostate cancer-specific mortality rates were RP, 12% (95% CI, 8%-17%); EBRT, 13% (95% CI, 8%-19%); and EBRT+BT, 3% (95% CI, 1%-5%). EBRT+BT was associated with significantly lower prostate cancer-specific mortality than either RP or EBRT (cause-specific HRs of 0.38 [95% CI, 0.21-0.68] and 0.41 [95% CI, 0.24-0.71]). Adjusted 5-year incidence rates of distant metastasis were RP, 24% (95% CI, 19%-30%); EBRT, 24% (95% CI, 20%-28%); and EBRT+BT, 8% (95% CI, 5%-11%). EBRT+BT was associated with a significantly lower rate of distant metastasis (propensity-score-adjusted cause-specific HRs of 0.27 [95% CI, 0.17-0.43] for RP and 0.30 [95% CI, 0.19-0.47] for EBRT). Adjusted 7.5-year all-cause mortality rates were RP, 17% (95% CI, 11%-23%); EBRT, 18% (95% CI, 14%-24%); and EBRT+BT, 10% (95% CI, 7%-13%). Within the first 7.5 years of follow-up, EBRT+BT was associated with significantly lower all-cause mortality (cause-specific HRs of 0.66 [95% CI, 0.46-0.96] for RP and 0.61 [95% CI, 0.45-0.84] for EBRT). After the first 7.5 years, the corresponding HRs were 1.16 (95% CI, 0.70-1.92) and 0.87 (95% CI, 0.57-1.32). No significant differences in prostate cancer-specific mortality, distant metastasis, or all-cause mortality (7.5 and >7.5 years) were found between men treated with EBRT or RP (cause-specific HRs of 0.92 [95% CI, 0.67-1.26], 0.90 [95% CI, 0.70-1.14], 1.07 [95% CI, 0.80-1.44], and 1.34 [95% CI, 0.85-2.11]). **CONCLUSIONS AND RELEVANCE** Among patients with Gleason score 9-10 prostate cancer, treatment with EBRT+BT with androgen deprivation therapy was associated with significantly better prostate cancer-specific mortality and longer time to distant metastasis compared with EBRT with androgen deprivation therapy or with RP.

Kitabata H, Leipsic J, Patel MR, Nieman K, De Bruyne B, Rogers C, Pontone G, Nørgaard BL, Bax JJ, **Raff G, Chinnaiyan KM**, Rabbat M, Rønnow Sand NP, Blanke P, Fairbairn TA, Matsuo H, Amano T, Kawasaki T, Morino Y and Akasaka T (2018). "Incidence and predictors of lesion-specific ischemia by FFRCT: Learnings from the international ADVANCE registry." Journal of Cardiovascular Computed Tomography 12(2): 95-100.

[Full Text](#)

Department of Internal Medicine

Background: To date, the clinical utility of coronary computed tomography angiography (CTA)-derived fractional flow reserve (FFRCT) has been limited to trials and single center experiences. We herein report the incidence of abnormal FFRCT (≤ 0.80) and the relationship of lesion-specific ischemia to subject demographics, symptoms, and degree of stenosis in the multicenter, prospective ADVANCE registry. **Methods:** One thousand patients with suspected angina having documented coronary artery disease on coronary CTA and clinically referred for FFRCT were prospectively enrolled in the registry. Patient demographics, symptom status, coronary CTA and FFRCT findings were recorded. Univariate and multivariate analyses were performed to investigate the predictors related to abnormal FFRCT. **Results:** FFRCT data were analyzed in 952 patients (95.2%). Overall, 51.1% patients had a positive FFRCT value (≤ 0.80). Patients with ≥ 3 risk factors had a significantly higher rate of abnormal FFRCT than those with < 3 risk factors (60.2% vs.

43.9%, $p = 0.0001$). On multivariate analysis, baseline diabetes (odds ratio [OR] 1.52, 95% confidence interval [CI] 1.04–2.21, $p = 0.030$) and hypertension (OR 1.56, 95%CI 1.14–2.14, $p = 0.005$) were both predictive of abnormal FFRCT. In addition, >70% stenosis was significantly associated with low FFRCT (OR 31.16, 95%CI 12.25–79.22, $p < 0.0001$) vs. <30% stenosis. Notably, stenosis 30–49% vs. <30% had an increased likelihood of ischemia (OR 3.74, 95%CI 1.52–9.17, $p < 0.0001$). Conclusions: In this real-world registry, CT angiographic stenosis severity in addition to baseline cardiovascular risk factors conferred an increased likelihood of an abnormal FFRCT. Importantly, however, mild CT angiographic stenoses were noted to have an increased hazard for ischemia and the converse holding true for more severe stenoses as well.

Kokkinos P, Myers J, **Franklin B**, Narayan P, Lavie CJ and Faselis C (2018). "Cardiorespiratory fitness and health outcomes: A call to standardize fitness categories." Mayo Clinic Proceedings 93(3): 333-336.

[Full Text](#)

Department of Internal Medicine

An inverse association between physical activity or fitness status and health outcomes has been reported by several cohort studies. When fitness categories are established in quartiles or quintiles based on the peak exercise capacity achieved, the association is graded. Although significant health benefits of increased cardiorespiratory fitness (CRF) have been uniformly reported, the degree of protection has varied substantially between studies. This variability is likely due to varying methods used to define CRF categories, and not considering age, despite its strong effect on CRF. To ameliorate these methodological discrepancies, we propose standardized guidelines by which age-specific CRF categories should be defined.

LaBan MM (2018). "Regarding: Radial extracorporeal shockwave therapy is no more effective than placebo in the management of lateral epicondylitis: A double-blind, randomized, placebo-controlled trial." American Journal of Physical Medicine and Rehabilitation 97(2): e11.

[Full Text](#)

Department of Physical Medicine and Rehabilitation

Lai ZS, **Zhang P**, Qu ZH and **Hafez-Khayyata S** (2018). "Groove pancreatitis: A case report." American Journal of Clinical Pathology 149: S19-S20.

[Full Text](#)

Department of Pathology

Introduction: Groove pancreatitis (GP) is an uncommon chronic pancreatitis that affects the pancreatic groove, an area between the dorsal-cranial aspect of the head of the pancreas, duodenum, and common bile duct. The diagnosis is challenging as pancreatic adenocarcinoma can arise in the same area. Methods: We report a 73-year-old man, presented with nausea, vomiting, and unintentional weight loss. Initial MRI showed soft tissue fullness up to 1.8 cm in pancreaticoduodenal groove with adjacent stranding and mildly prominent lymph nodes. Endoscopic ultrasound (EUS) was performed, showing localized wall thickening in the second and third portion of the duodenum without mass lesions. Inflammatory changes with some cystic formation were identified in the region of pancreaticoduodenal groove. Fine needle aspiration (FNA) was not performed due to the lack of tolerance. Because of unsuccessful medical management and the protracted severe symptoms, pancreaticoduodenectomy (Whipple procedure) was performed. Grossly, there is a 1.6 x 1.0 x 0.9 cm cyst filled with green-black fluid within a 3 cm fibrotic area, which is 3.1 cm away from the pancreatic neck resection margin, and 3 cm away from the ampulla of Vater. No discrete mass lesion was noted. The specimen was extensively sampled. Sections of duodenal wall and adjacent pericolonic parenchyma showed fibrosis and scarring, chronic inflammatory infiltrate including lymphocytes, some plasma cells, and a few eosinophils. There was also granulation tissue formation and myofibroblastic proliferation (smooth muscle actin positive), and multiple cyst formation with intraluminal debris and thick secretions. Most of the cysts do not have lining; however, rare cysts were noted with focal residual reparative epithelium. No venulitis was identified. These findings are identified in the duodenal wall and the adjacent pancreatic parenchyma, and extend into the head of pancreas. No evidence of carcinoma is identified. The findings are consistent with GP. Furthermore, IgG4 and CD138 immunostain showed rare plasma cells positive; therefore, clinical correlation with IgG4-related autoimmune pancreatitis was suggested. However, lab results showed a normal total IgG level, and there were no other organ involvements to suggest IgG4-related disease. The patient remains symptom-free during the follow-up visits. Conclusion: This case

illustrated the importance of recognizing GP and its differentials, in particular from pancreatic adenocarcinoma and IgG4-related pancreatitis, as the management of each is dramatically different, with adenocarcinoma routinely involving more aggressive treatment, whereas IgG4-related autoimmune pancreatitis being managed with steroids medically instead of surgical procedures.

Lamb LE, Bartolone SN, Tree MO, Conway MJ, Rossignol J, Smith CP and **Chancellor MB** (2018). "Rapid detection of zika virus in urine samples and infected mosquitos by reverse transcription-loop-mediated isothermal amplification." Scientific Reports 8(1): 3803.

[Full Text](#)

Department of Urology

Infection with Zika virus (ZIKV) is of growing concern since infection is associated with the development of congenital neurological disease. Quantitative reverse transcription PCR (qRT-PCR) has been the standard for ZIKV detection; however, Reverse Transcription Loop-Mediated Isothermal Amplification (RT-LAMP) may allow for faster and cheaper testing. Studies have suggested that ZIKV detection in urine is more sensitive and has a longer window of detection compared to serum and saliva. The objective of this study was to develop a urine diagnostic test that could be completed in under 30 minutes. Urine samples spiked with ZIKV or dengue virus were tested using RT-LAMP as well as by conventional quantitative qRT-PCR. These techniques were then validated using crude lysates made from ZIKV infected mosquitoes in addition to urine and serum samples from ZIKV infected patients. RT-LAMP specifically detected ZIKV in urine and serum for ZIKV infected patients and crude mosquito lysates. This test was performed in under 30 minutes and did not require RNA extraction from urine nor mosquitos. This approach could be used for monitoring of exposed individuals, especially pregnant women, couples wanting to conceive, or individuals with suspicious symptoms as well as surveillance of mosquito populations.

Lanni TBJ, Stevens C, Farah M, Boyer A, Davis J, **Welsh R, Keena D, Akhtar A** and **Mezwa D** (2018). "Early results from the implementation of a lung cancer screening program: The Beaumont Health System experience." American Journal of Clinical Oncology 41(3): 218-222.

[Full Text](#)

Department of Radiation Oncology

Department of Diagnostic Radiology and Molecular Imaging

Department of Surgery

Department of Internal Medicine

Purpose: In 2010, a new study published by the National Lung Screening Trial showed a 20% reduction in mortality for those patients screened with low-dose computed topography (CT) versus x-ray. Recently, the Centers of Medicare and Medicaid have agreed to cover this service for those patients who meet the screening criteria. We compare the outcomes and costs associated with developing and implementing a lung cancer screening program. Materials and Methods: One thousand sixty-five patients were screened from January 2014 to December 2014. These patients were screened on a low-dose CT screening protocol throughout Beaumont Health System. The American College of Radiology Lung Imaging Reporting and Data System (Lung-RADS) were used to assign the score for each patient. Screening eligibility criteria were based on the National Comprehensive Cancer Network guidelines. Downstream activity and revenue was determined after initial low-dose CT screening. Results: At 1 year, 20 patients (1.6%) were diagnosed with lung cancer and another 15 patients were diagnosed with another form of cancer after screening. The median age, packs per day, and pack years smoked for all patients was 63, 1.0, and 39.0 years, respectively. Lung-RADS scores for all patients was 18% (1), 24.1% (2), 6.3% (3), and 5.4% (4). The net revenue for all activity after screening was \$3.2 million. Conclusions: The establishment of a low-dose CT lung cancer screening program improved the ability to screen patients as demonstrated by the number of patients screened and those diagnosed with a malignancy. These findings were also consistent with the findings from the National Lung Screening Trial study.

Latella L, **McAuley R** and Rabinowitz M (2018). "Beliefs about vaccinations: Comparing a sample from a medical school to that from the general population." International Journal of Environmental Research and Public Health 15(4): 620.

[Full Text](#)

Department of Foundational Medical Studies

The current study compares health care professionals' beliefs about vaccination statements with the beliefs of a sample of individuals from the general population. Students and faculty within a medical school (n = 58) and a sample from the general population in the United States (n = 177) were surveyed regarding their beliefs about vaccinations. Participants evaluated statements about vaccinations (both supporting and opposing), and indicated whether they thought the general population would agree with them. Overall, it was found that subjects in both populations agreed with statements supporting vaccination over opposing statements, but the general population was more likely to categorize the supporting statements as beliefs rather than facts. Additionally, there was little consensus within each population as to which statements were considered facts versus beliefs. Both groups underestimated the number of people that would agree with them; however, the medical affiliates showed the effect significantly more. Implications for medical education and health communication are discussed.

Li X, **Kabolizadeh P**, **Yan D**, **Qin A**, **Zhou J**, Hong Y, **Guerrero T**, **Grills I**, **Stevens C** and Ding X (2018). "Improve dosimetric outcome in stage III non-small-cell lung cancer treatment using spot-scanning proton arc (SPArc) therapy." *Radiation Oncology* 13(1): 35.

[Full Text](#)

Department of Radiation Oncology

Background: To evaluate spot-scanning proton arc therapy (SPArc) and multi-field robust optimized intensity modulated proton therapy (RO-IMPT) in treating stage III non-small-cell lung cancer (NSCLC) patients. **Methods:** Two groups of stage IIIA or IIIB NSCLC patients (group 1: eight patients with tumor motion less than 5 mm; group 2: six patients with tumor motion equal to or more than 5 mm) were re-planned with SPArc and RO-IMPT. Both plans were generated using robust optimization to achieve an optimal coverage with 99% of internal target volume (ITV) receiving 66 Gy (RBE) in 33 fractions. The dosimetric results and plan robustness were compared for both groups. The interplay effect was evaluated based on the ITV coverage by single-fraction 4D dynamic dose. Total delivery time was simulated based on a full gantry rotation with energy-layer-switching-time (ELST) from 0.2 to 4 s. Statistical analysis was also evaluated via Wilcoxon signed rank test. **Results:** Both SPArc and RO-IMPT plans achieved similar robust target volume coverage for all patients, while SPArc significantly reduced the doses to critical structures as well as the interplay effect. Specifically, compared to RO-IMPT, SPArc reduced the average integral dose by 7.4% ($p = 0.001$), V_{20} , and mean lung dose by an average of 3.2% ($p = 0.001$) and 1.6 Gy (RBE) ($p = 0.001$), the max dose to cord by 4.6 Gy (RBE) ($p = 0.04$), and the mean dose to heart and esophagus by 0.7 Gy (RBE) ($p = 0.01$) and 1.7 Gy (RBE) ($p = 0.003$) respectively. The average total estimated delivery time was 160.1 s, 213.8 s, 303.4 s, 840.8 s based on ELST of 0.2 s, 0.5 s, 1 s, and 4 s for SPArc plans, compared with the respective values of 182.0 s ($p = 0.001$), 207.9 s ($p = 0.22$), 250.9 s ($p = 0.001$), 509.4 s ($p = 0.001$) for RO-IMPT plans. Hence, SPArc plans could be clinically feasible when using a shorter ELST. **Conclusions:** This study has indicated that SPArc could further improve the dosimetric results in patients with locally advanced stage NSCLC and potentially be implemented into routine clinical practice.

Lilly RJ, Koueiter DM, Graner KC, **Nowinski GP**, **Sadowski J** and **Grant KD** (2018). "Computer-assisted navigation for intramedullary nail fixation of intertrochanteric femur fractures: A randomized, controlled trial." *Injury* 49(2): 345-350.

[Full Text](#)

Department of Orthopedic Surgery

Introduction: Lag screw cutout is one of the most commonly reported complications following intramedullary nail fixation of intertrochanteric femur fractures. However, its occurrence can be minimized by a well-positioned implant, with a short Tip-to-Apex Distance (TAD). Computer-assisted navigation systems provide surgeons with the ability to track screw placement in real-time. This could allow for improved lag screw placement and potentially reduce radiation exposure to the patient and surgeon. **Methods:** Between Oct 2014 and Jan 2016, patients with intertrochanteric femur fractures being treated with intramedullary nail fixation by one of three fellowship-trained orthopaedic traumatologists were enrolled. Inclusion criteria were low-energy mechanism of injury and fracture class 31-A1/A2. Open fractures and patients with multiple injuries to the lower extremity were excluded. Patients were randomly assigned to computer-assisted navigation or a conventional fluoroscopic technique for lag screw placement. The primary outcomes were TAD, measured by postoperative anteroposterior and lateral x-rays by an independent reviewer, and radiation exposure measured in seconds of fluoroscopy time. Surgical time was also recorded. **Results:** 50

patients were randomized, 26 to the computer-assisted navigation group and 24 to the control group. The mean manually-measured TAD in the computer-assisted navigation group was 14.1 mm \pm 3.2 and in the control group was 14.9 mm \pm 3.0 ($p = 0.394$). There was no difference between groups in total radiation time (navigation: 58.8 s \pm 23.6, control: 56.5 s \pm 28.5, $p = 0.337$) or radiation time during lag screw placement (navigation: 19.4 s \pm 8.8, control: 18.8 s \pm 8.0, $p = 0.522$). The surgical time was significantly longer in the computer-assisted navigation group with a mean surgical time of 45.8 min \pm 9.8 compared to 38.4 min \pm 9.3 in the control group ($p = 0.009$). Conclusions: Computer-assisted navigation consistently produced excellent TADs, however it was not significantly better than conventional methods when done by fellowship-trained orthopaedic traumatologists. Surgeons with a lower volume trauma practice could potentially benefit from computer-assisted navigation to obtain better TAD.

Lynch AI, Reznar MM, **Zalesin KC** and Bohn D (2018). "To keep myself on track: The impact of dietary and weight monitoring behaviors on weight loss after bariatric surgery." *Bariatric Surgical Practice and Patient Care* 13(1): 44-52.

[Request Form](#)

Department of Internal Medicine

Background: Dietary and weight monitoring are effective strategies for weight loss among individuals using dietary and lifestyle weight management techniques. This study aimed to (1) examine self-monitoring behaviors in bariatric surgery patients, (2) identify the effect of self-monitoring behaviors on postsurgery weight loss, and (3) describe patients' explanations for performing self-monitoring behaviors. Methods: Thirty participants (24 women, 6 men) scheduled for either gastric bypass ($n = 11$) or sleeve gastrectomy ($n = 19$) were recruited to participate in a year-long, observational study of dietary and weight management behaviors. Twenty-nine completed self-monitoring questionnaires presurgery; 22 participants were available at the 6- and 23 were available at the 12-month follow-up. Results: Baseline dietary and weight monitoring behaviors positively correlated with performance of those behaviors at 12 months ($p < 0.05$). Dietary monitoring behaviors at 12 months were positively correlated to total weight lost and percent excess weight loss at 12 months ($p < 0.05$). Weight monitoring was not related to weight outcomes. Participants' explanations for monitoring behaviors included accountability, keeping track of food or nutrient intake, and monitoring weight loss or preventing weight gain. Conclusion: Dietary monitoring may be a useful weight loss strategy following bariatric surgery. Further research is needed to examine the long-term benefits of dietary and weight monitoring behaviors.

Madsen TE, McLean S, Zhai W, Linnstaedt S, Kurz MC, **Swor R**, Hendry P, Peak D, Lewandowski C, Pearson C, O'Neil B, Datner E, Lee D and Beaudoin F (2018). "Gender differences in pain experience and treatment after motor vehicle collisions: A secondary analysis of the CRASH Injury study." *Clinical Therapeutics* 40(2): 204-213.e202.

[Full Text](#)

Department of Emergency Medicine

Purpose: Little is known about gender differences in the treatment of pain after motor vehicle collisions (MVCs) in an emergency department (ED). We aimed to describe gender differences in pain experiences and treatment, specifically the use of opioids and benzodiazepines after ED discharge, for MVC-related pain. Methods: This was a secondary analysis of previously collected data from the CRASH Injury studies. We included patients who were seen and discharged from an ED after an MVC and who were enrolled in 1 of 2 multicenter longitudinal prospective cohort studies (1 black/non-Hispanic and 1 white/non-Hispanic). First, we compared the experience of pain as defined by self-reported moderate-to-severe axial pain, widespread pain, number of somatic symptoms, pain catastrophizing, and peritraumatic distress between women and men using bivariate analyses. We then determined whether there were gender differences in the receipt of prescription medications for post-MVC pain symptoms (opioids and benzodiazepines) using multivariate logistic regression adjusting for demographic characteristics, pain, and collision characteristics. Findings: In total, 1878 patients were included: 61.4% were women. More women reported severe symptoms on the pain catastrophizing scale (36.8% vs 31.0%; $P = 0.032$) and peritraumatic distress following the MVC (59.7% vs 42.5%; $P < 0.001$), and women reported more somatic symptoms than men (median, 3.9; interquartile range, 3.7-4.0 vs median, 3.3; interquartile range, 3.1-3.5; $P < 0.001$). Unadjusted, similar proportions of women and men were given opioids (29.2% vs 29.7%; $P = 0.84$). After adjusting for covariates, women and men remained equally likely to receive a prescription for opioids (relative risk = 0.83; 95% confidence interval, 0.58-1.19). Women were less likely than men to receive a benzodiazepine at discharge from an ED (relative risk = 0.53;

95% confidence interval, 0.32–0.88). Implications: In a large, multicenter study of ED patients treated for MVC, there were gender differences in the acute psychological response to MVC with women reporting more psychological and somatic symptoms. Women and men were equally likely to receive opioid prescriptions at discharge. Future research should investigate potential gender-specific interventions to reduce both posttraumatic distress and the risk of developing negative long-term outcomes like chronic pain. © 2018 Elsevier HS Journals, Inc.

Marijanovich N and **Halalau A** (2018). "Hemorrhagic tamponade as initial manifestation of systemic lupus with subsequent refractory and progressive lupus myocarditis resulting in cardiomyopathy and mitral regurgitation." Case Reports in Rheumatology 2018: 4.

[Full Text](#)

Department of Internal Medicine

Systemic lupus erythematosus (SLE) is a heterogeneous autoimmune disease with a wide range of clinical and serological manifestations. Cardiac disease among patients with SLE is common and can involve the pericardium, myocardium, valves, conduction system, and coronary arteries. We are reporting a case of SLE in a young woman that is unique in that initial symptoms consisted of pericarditis and hemorrhagic tamponade which remained progressive and resistant to aggressive immunosuppressive treatment and led to severe cardiomyopathy (ejection fraction of 25%) and severe (+4) mitral regurgitation. Her immunosuppressive treatment included hydroxychloroquine, high-dose steroids, intravenous immunoglobulins, azathioprine, and mycophenolate mofetil. Her disease progression was felt to be due to underlying uncontrolled SLE because the complement levels remained persistently low throughout the entire course and PET Myocardial Perfusion and Viability study showed stable persistent active inflammation. Eventually, she was treated with cyclophosphamide which led to improvement in ejection fraction to 55% with only mild mitral regurgitation.

May T, Stewart JM, Bernardini MQ, Ferguson SE, Laframboise S, Jiang H and **Rosen B** (2018). "The prognostic value of perioperative, pre-systemic therapy CA125 levels in patients with high-grade serous ovarian cancer." International Journal of Gynaecology and Obstetrics 140(2): 247-252.

[Full Text](#)

Department of Obstetrics and Gynecology

OBJECTIVE: To investigate the ability of preoperative CA125 and post-surgical CA125 changes to predict outcomes among patients with high-grade serous ovarian cancer (HGSC). METHODS: The present retrospective cohort study included patients with HGSC who underwent surgery between January 1, 2003, and December 31, 2011 at Princess Margaret Cancer Center, Toronto, ON, Canada. CA125 was measured at diagnosis and following surgery, and the CA125 ratio was calculated (preoperative CA125/postoperative CA125). Optimal CA125 cutoff levels were identified using the point with the most significant log-rank-test result. Univariate and multivariate analyses with Cox proportional hazard modeling was used to study overall survival. RESULTS: Among 212 patients, an optimal baseline CA125 cutoff value of 174 U/mL and a seven-fold decrease in CA125 after surgery were positive prognostic indicators. A 10-fold increase in baseline CA125 was associated with decreased overall survival (univariate hazard ratio 1.55, 95% confidence interval [CI] 1.17-2.06; P=0.002; multivariate hazard ratio 1.72, 95% CI 1.21-2.44; P=0.002). An increase in the CA125 ratio (log10 [preoperative CA125/postoperative CA125]) was associated with improved overall survival (univariate hazard ratio 0.63, 95% CI 0.43-0.90; P=0.012; multivariate hazard ratio 0.41, 95% CI 0.24-0.70, P<0.001). CONCLUSION: CA125 demonstrated prognostic value for HGSC; baseline CA125 of 174 U/mL or lower and a post-surgical decline of seven-fold or greater were associated with improved overall survival.

Mertens A, Bloomingdale R and **Gallagher M** (2018). "Right coronary artery to coronary sinus fistula presenting with pericardial effusion." Journal of the American College of Cardiology 71(11): 2496-2496.

[Full Text](#)

Department of Internal Medicine

Background: Coronary artery to coronary sinus fistula in association with congenital coronary sinus stenosis is a rare cardiac anomaly. We present a complex patient with recurrent pericardial effusions found to have this condition. Case: A 34 year-old female at 31 weeks pregnant presented for dyspnea. On arrival, her heart rate was 122bpm, blood pressure 112/82mmHg and O2 saturation 99% on 2L nasal cannula.

Electrocardiogram showed sinus tachycardia with low voltage. Pulsus paradoxus was present and echocardiography (echo) revealed a large pericardial effusion with tamponade physiology. Emergent pericardiocentesis yielded 1800mL of serosanguinous fluid. Cultures, cytology, acid-fast bacilli staining, autoimmune and viral serologies were negative. Despite colchicine, daily drainage persisted. Labor was induced at 32 weeks. Indomethacin and prednisone were begun and the drain was removed. She returned one month later in acute tamponade. Pericardial window for definitive management was performed. Intra-operative transesophageal echo was concerning for pulmonary hypertension. A CT pulmonary embolism scan revealed an enlarged right coronary artery (RCA) communicating with a large coronary sinus (CS). A right atrial step-up on right heart catheterization was appreciated. Cardiac CT Angiogram and Magnetic Resonance Imaging showed a tortuous, dilated RCA with a fistula into an enlarged CS. Ostial CS stenosis into the RA was also noted. Decision-making: Surgical and interventional opinions were obtained. Closure was preferred due to the shunt leading to right chamber enlargement, and likely contributing to the pericardial effusion. Presence of the CS ostial stenosis prevented percutaneous approach to closure and open-surgical intervention was pursued. Conclusion: CS enlargement from coronary artery-coronary sinus fistula produces a high pressure left to right shunt, leading to an increased risk of myocardial infarction, heart failure, or aneurysm-related complications. Our patient presented with CS stenosis, worsening CS dilation and potentially contributing to her pericardial effusion. This case highlights the importance of multimodality imaging for surgical planning.

Milling TJ, Jr., **Clark CL**, Feronti C, Song SS, Torbati SS, Fermann GJ, Weiss J and Patel D (2018). "Management of Factor Xa inhibitor-associated life-threatening major hemorrhage: A retrospective multi-center analysis." [American Journal of Emergency Medicine](#) 36(3): 396-402.

[Full Text](#)

Department of Emergency Medicine

BACKGROUND: Factor Xa (FXa) inhibitors, used for stroke prevention in atrial fibrillation and venous thromboembolism treatment and prevention, are the dominant non-Vitamin K oral anticoagulants on the market. While major bleeding may be less common with these agents compared to warfarin, it is always a risk, and little has been published on the most serious bleeding scenarios. This study describes a cohort of patients with FXa inhibitor-associated life-threatening bleeding events, their clinical characteristics, interventions and outcomes. **METHODS:** We performed a retrospective, 5-center review of FXa inhibitor-treated major bleeding patients. Investigators identified potential cases by cross-referencing ICD-9/10 codes for hemorrhage with medication lists. Investigators selected cases they deemed to require immediate reversal of coagulopathy, and reviewed charts for characteristics, reversal strategies and other interventions, and outcomes. **RESULTS:** A total of 56 charts met the inclusion criteria for the retrospective cohort, including 29 (52%) gastrointestinal bleeds (GIB), 19 (34%) intracranial hemorrhages (ICH) and 8 (14%) others. Twenty-four (43%) patients received various factor or plasma products, and the remainder received supportive care. Thirty-day mortality was 21% (n=12). Re-anticoagulation within 30-days occurred in 23 (41%) patients. Thromboembolic events (TEEs) occurred in 6 (11%) patients. No differences were observed in outcomes by treatment strategy. **CONCLUSIONS:** This cohort of FXa inhibitor-associated major bleeding scenarios deemed appropriate for acute anticoagulant reversal illustrates the variable approaches in the absence of a specific reversal agent.

Mink R, Schwartz A, Carraccio C, High P, Dammann C, McGann KA, Kesselheim J, Herman B, Pitts S, Baffa G, Herman B, Turner DA, Fussell J, High P, Hsu D, Stafford D, Aye T, Sauer C, Kesselheim J, Myers A, McGann K, Dammann C, Chess P, Mahan J, Weiss P, Curran M, Schwartz A, Carraccio C, Herman B, Mink R, Havalad V, Pinheiro J, Alderman E, Fuloria M, McCabe ME, Mehta J, Rivas Y, Rosenberg M, Doughty C, Hergenroeder A, Kale A, Lee-Kim Y, Rama JA, Steuber P, Voigt B, Hardy K, Johnston S, Boyer D, Mauras C, Schonwald A, Sharma T, Barron C, Dennehy P, Jacobs ES, Welch J, Kumar D, Mason K, Roizen N, Rose JA, Bokor B, Chapman JI, Frank L, Sami I, Schuette J, Lutes RE, Savelli S, Amirnovin R, Harb R, Kato R, Marzan K, Monzavi R, Vanderbilt D, Doughty L, McAnaney C, Rice W, Widdice L, Erenberg F, Gonzalez BE, Adkins D, Green D, Narayan A, Rehder K, Clingenpeel J, Starling S, Karpen HE, Rouster-Stevens K, Bhatia J, Fuqua J, Anders J, Trent M, Ramanathan R, Nicolau Y, Dozor AJ, Kinane TB, Stanley T, Rao AN, Bone M, Camarda L, Heffner V, Kim O, Nocton J, Rabbitt AL, Tower R, Amaya M, Jaroscak J, Kiger J, Macias M, Titus O, Awonuga M, Vogt K, Warwick A, Coury D, Hall M, Letson M, Rose M, Glickstein J, Lusman S, Roskind C, Soren K, Katz J, Siqueira L, Atlas M, Blaufox A, Gottlieb B, Meryash D, Vuguin P, Weinstein T, Armsby L, Madison L, Scottoline B, Shereck E, Henry M,

Teaford PA, Long S, Varlotta L, Zubrow A, Barlow C, Feldman H, Ganz H, Grimm P, Lee T, Weiner LB, Molle-Rios Z, Slamon N, Guillen U, Miller K, Federman M, Cron R, Hoover W, Simpson T, Winkler M, Harik N, Ross A, Al-Ibrahim O, Carnevale FP, Waz W, Bany-Mohammed F, Kim JH, Printz B, Brook M, Hermiston M, Lawson E, van Schaik S, McQueen A, Booth KVP, Teshner M, Barker J, Friedman S, Mohon R, Sirotak A, Brancato J, Sayej WN, Maraqa N, Haller M, Stryjewski B, Brophy P, Rahhal R, Reinking B, Volk P, Bryant K, Currie M, Potter K, Falck A, Weiner J, Carney MM, Felt B, Barnes A, Bendel CM, Binstadt B, Carlson K, Garrison C, Moffatt M, Rosen J, Sharma J, Tieves KS, Hsu H, Kugler J, Simonsen K, Fastle RK, Dannaway D, Krishnan S, McGuinn L, Lowe M, Witchel SF, Matheo L, Abell R, Caserta M, Nazarian E, Yussman S, Thomas AD, Hains DS, Talati AJ, Adderson E, Kellogg N, Vasquez M, Allen C, Brion LP, Green M, Journeycake J, Yen K, Quigley R, Blaschke A, Bratton SL, Yost CC, Etheridge SP, Laskey T, Pohl J, Soprano J, Fairchild K, Norwood V, Johnston TA, Klein E, Kronman M, Nanda K, Smith L, Allen D, Frohna JG, Patel N, Estrada C, Fleming GM, Gillam-Krakauer M, Moore P, El Khoury JC, Helderman J, Barretto G, **Levasseur K**, Johnston L and the Steering Committee of the Subspecialty Pediatrics Investigator N (2018). "Creating the subspecialty pediatrics investigator network." *Journal of Pediatrics* 192: 3-4.e2.

[Full Text](#)

Department of Emergency Medicine

Navin MC, Kozak AT and **Clark EC** (2018). "The evolution of immunization waiver education in Michigan: A qualitative study of vaccine educators." *Vaccine* 36(13): 1751-1756.

[Full Text](#)

OUWB Medical Student Author

Background: In 2015, Michigan implemented an education requirement for parents who requested nonmedical exemptions from school or daycare immunization mandates. Michigan required parents to receive education from public health staff, unlike other states, whose vaccine education requirements could be completed online or at physicians' offices. Methods and Findings: Results of focus group interviews with 39 of Michigan's vaccine waiver educators, conducted during 2016 and 2017, were analyzed to identify themes describing educators' experiences of waiver education. The core theme that emerged from the data was that educators changed their perception of the purpose of waiver education, from convincing vaccine-refusing parents to vaccinate their children to promoting more diffuse and forward-looking goals.

Conclusions: Michigan, and other communities that require vaccine waiver education, ought to investigate whether and how waiver education contributes to public health goals other than short-term vaccination compliance. Research shows that education requirements can decrease nonmedical exemption rates by discouraging some parents from applying for exemptions, but further studies are needed to identify ways in which waiver education can promote other public health goals, while minimizing costs and burdens on staff.

Ogunyemi D, McGlynn S, Ronk A, Knudsen P, Andrews-Johnson T, Raczkiwicz A, Jovanovski A, **Kaur S**, **Dykowski M**, **Redman M** and **Bahado-Singh R** (2018). "Using a multifaceted quality improvement initiative to reverse the rising trend of cesarean births." *The Journal of Maternal-Fetal & Neonatal Medicine* 31(5): 567-579.

[Request Form](#)

Department of Obstetrics and Gynecology

PURPOSE: National efforts exist to safely reduce the rate of cesarean delivery, a major source of increased morbidity and healthcare costs. This is a report of a quality improvement study targeting reduction of primary cesarean deliveries. MATERIALS AND METHODS: From March 2014 to March 2016, interventions included a nested case-control review of local risk factors, provider and patient education, multidisciplinary reviews based on published guidelines with feedback, provider report cards, commitment to labor duration guidelines, and a focus on natural labor. Primary outcomes were the total primary singleton vertex and the nulliparous term singleton vertex (NTSV) cesarean delivery rates. Secondary outcome measures were postpartum hemorrhage, chorioamnionitis, perineal laceration, operative delivery, neonatal intensive care unit (NICU) admission, stillbirth, and neonatal mortality. Statistical process control charts identified significant temporal trends. RESULTS: Control chart analysis demonstrated that the institutional cesarean delivery rate was due to culture and not "outlier" obstetricians. The primary singleton vertex cesarean rate decreased from 23.4% to 14.1% and the NTSV rate decreased from 34.5% to 19.2% (both $p < .0001$). There was a decrease in NICU admission but no significant changes in postpartum hemorrhage, chorioamnionitis, stillbirth, or neonatal mortality. CONCLUSIONS: Structured quality improvement initiatives may decrease primary cesarean deliveries without increasing maternal or perinatal morbidity.

Ohe C, Smith SC, Sirohi D, Divatia M, De Peralta-Venturina M, Paner GP, Agaimy A, **Amin MB**, Argani P, Chen YB, Cheng L, Colecchia M, Comp rat E, Da Cunha IW, Epstein JI, Gill AJ, Hes O, Hirsch MS, Jochum W, Kunju LP, MacLean F, Magi-Galluzzi C, McKenney JK, Mehra R, Nesi G, Osunkoya AO, Picken MM, Rao P, Reuter VE, De Oliveira Salles PG, Schultz L, Tickoo SK, Tomlins SA and Trpkov K (2018). "Reappraisal of morphologic differences between renal medullary carcinoma, collecting duct carcinoma, and fumarate hydratase-deficient renal cell carcinoma." [American Journal of Surgical Pathology](#) 42(3): 279-292.

[Full Text](#)

Department of Pathology

Renal medullary carcinomas (RMCs) and collecting duct carcinomas (CDCs) are rare subsets of lethal high-stage, high-grade distal nephron-related adenocarcinomas with a predilection for the renal medullary region. Recent findings have established an emerging group of fumarate hydratase (FH)-deficient tumors related to hereditary leiomyomatosis and renal cell carcinoma (HLRCC-RCCs) syndrome within this morphologic spectrum. Recently developed, reliable ancillary testing has enabled consistent separation between these tumor types. Here, we present the clinicopathologic features and differences in the morphologic patterns between RMC, CDC, and FH-deficient RCC in consequence of these recent developments. This study included a total of 100 cases classified using contemporary criteria and ancillary tests. Thirty-three RMCs (SMARCB1/INI1-deficient, hemoglobinopathy), 38 CDCs (SMARCB1/INI1-retained), and 29 RCCs defined by the FH-deficient phenotype (FH-/2SC + or FH \pm /2SC + with FH mutation, regardless of HLRCC syndromic stigmata/history) were selected. The spectrum of morphologic patterns was critically evaluated, and the differences between the morphologic patterns present in the 3 groups were analyzed statistically. Twenty-five percent of cases initially diagnosed as CDC were reclassified as FH-deficient RCC on the basis of our contemporary diagnostic approach. Among the different overlapping morphologic patterns, sieve-like/cribriform and reticular/yolk sac tumor-like patterns favored RMCs, whereas intracystic papillary and tubulocystic patterns favored FH-deficient RCC. The tubulopapillary pattern favored both CDCs and FH-deficient RCCs, and the multinodular infiltrating papillary pattern favored CDCs. Infiltrating glandular and solid sheets/cords/nested patterns were not statistically different among the 3 groups. Viral inclusion-like macronucleoli, considered as a hallmark of HLRCC-RCCs, were observed significantly more frequently in FH-deficient RCCs. Despite the overlapping morphology found among these clinically aggressive infiltrating high-grade adenocarcinomas of the kidney, reproducible differences in morphology emerged between these categories after rigorous characterization. Finally, we recommend that definitive diagnosis of CDC should only be made if RMC and FH-deficient RCC are excluded.

Orosey M, **Amin M** and **Cappell MS** (2018). "A 14-Year study of 398 esophageal adenocarcinomas diagnosed among 156,256 EGDs performed at two large hospitals: An inlet patch is proposed as a significant risk factor for proximal esophageal adenocarcinoma." [Digestive Diseases & Sciences](#) 63(2): 452-465.

[Full Text](#)

Department of Internal Medicine

Department of Pathology

Background: An association between inlet patches and proximal esophageal adenocarcinomas is currently suspected because of numerous case reports of simultaneous occurrence of both diseases. Aims: To analyze whether inlet patches are significantly associated with proximal esophageal adenocarcinomas in a large population. Methods: Computerized search of pathology and EGD reports revealed 398 cases of esophageal adenocarcinomas among 156,236 EGDs (performed on 106,510 patients) diagnosed by histopathology performed at Royal Oak/Troy, William Beaumont Hospitals, 2003-2016. Adenocarcinomas localized as distal, middle, or proximal; and characterized as associated versus unassociated with inlet patches. Medical records were reviewed. Endoscopic photographs, radiologic images, and pathologic slides were re-reviewed. Two researchers independently performed systematic computerized literature searches; cases of simultaneous diseases identified by consensus. Results: Adenocarcinoma locations included: distal-381, middle-14, and proximal esophagus-3. Five patients had inlet patches with esophageal adenocarcinomas located at: distal-2, middle-0, and proximal esophagus-3 (relative frequency of inlet patches with cancers of distal/middle esophagus = 2/395 [0.5%] vs. proximal esophagus = 3/3 [100%], $p < .000001$, 95% OR CI > 50.1, Fisher's exact test). Cases of proximal esophageal adenocarcinomas within inlet patches included: (1) Seventy-eight-year-old man presented with dysphagia. Neck CT showed proximal esophageal mass. EGD revealed semi-

circumferential, multinodular, 3.0 × 1.5 cm mass within inlet patch. Histopathology of biopsies revealed moderately-to-poorly differentiated adenocarcinoma. Patient received chemoradiotherapy and expired 2 years later. (2) Seventy-nine-year-old man presented with anorexia and weight loss. EGD demonstrated proximal esophageal mass within inlet patch. Histopathology of biopsies revealed poorly differentiated, signet ring cell adenocarcinoma. Chest CT revealed 3.4 × 2.1-cm-proximal esophageal mass. Patient expired 4 months later. (3) Sixty-year-old man presented with dysphagia. EGD revealed 4-cm-long, semi-circumferential, proximal esophageal mass within inlet patch. Histopathology of biopsies revealed poorly differentiated adenocarcinoma. Patient underwent emergency esophagectomy for esophageal perforation 2 weeks after initiating chemoradiotherapy, and died shortly thereafter. Literature review revealed 39 cases of simultaneous disease. Study Limitations: Potential underreporting by endoscopists of inlet patches at EGD. Conclusions: Study supplements 39 previously reported cases of simultaneous disease, by adding three new cases, and by novel report of statistically significant association between these two entities, which has important implications in the pathophysiology of proximal esophageal adenocarcinoma.

Pangrazzi GJ, **Baker EA**, Shaheen PJ, Okeagu CN and **Fortin PT** (2018). "Single-surgeon experience and complications of a fixed-bearing total ankle arthroplasty." Foot and Ankle International 39(1): 46-58.

[Full Text](#)

Department of Orthopedic Surgery

Background: Total ankle arthroplasty (TAA) has historically resulted in inferior survivorship rates compared with total hip and knee arthroplasty, because of technical issues unique to ankle anatomy. In this study, a single-surgeon series of intra- and postoperative complications as well as resultant reoperations/revisions of the Tornier Salto Talaris, a fixed-bearing TAA prosthesis, were reviewed. Methods: Medical records from index procedure to latest follow-up of primary TAA were reviewed. Complications were categorized according to the Glazebrook classification; additional complications were documented. Concurrent procedures were recorded, and radiographs were analyzed for alignment, subsidence, and cyst formation. Time to complication onset and learning curve analyses were performed. One hundred four Salto Talaris TAA prostheses (96 patients), with an average follow-up of 46 months, were included. Results: Thirty-five complications were identified in 32 ankles with a 34% complication rate, resulting in 11 reoperations (5 TAA revisions). Technical error (n = 12), wound healing (n = 9), and aseptic loosening (n = 4) were the most common complications, and there were no statistically significant differences in demographics or follow-up duration between cases with versus without complications. In both the cohorts with and without complications, there were moderate, negative correlations between radiographically observed keel osteopenia and lucency ($\rho = -0.548$, $P = .00125$, and $\rho = -0.416$, $P = .000303$, respectively); also, in the complication cohort, a weak, positive correlation between subsidence and lucency ($\rho = 0.357$, $P = .0450$) was found. Conclusion: Salto Talaris TAA survivorship and reoperation rates in our series were comparable with previous reports, using either the same or similar mobile-bearing prostheses; new information regarding complication, radiographic, and learning curve analyses was presented. Level of Evidence: Level IV, retrospective case series.

Patel M, Matka M, Tagami T, Boura J, **Cutler N**, **Almany S**, **Berman A** and **Haines D** (2018). "The value added by a limited echocardiogram to a student athlete screening program." Journal of the American College of Cardiology 71(11): 1514-1514.

[Full Text](#)

Department of Pediatrics

Department of Internal Medicine

Background: Sudden cardiac death is the most common cause of death among young athletes. ECG use in screening programs is controversial due to false positive rates of 2-20%. Addition of limited echocardiography (L2DE) might improve both sensitivity and specificity of screening. Methods: The Beaumont Student Heart Check Program uses history, physical and ECG to screen for heart disease among high school students. Prior to April 2013, students underwent a L2DE only if structural disease was anticipated; after April 2013, all students underwent L2DE. If abnormalities were identified, further workup was advised. Heart Check data was entered into a prospective database. Results: 9826 students were screened before and 3479 students after April 2013. Significant ECG and/or L2DE abnormalities were identified that suggested increased risk: 2 Brugada pattern ECGs; 26 prolonged QT; 7 abnormal hypertrophy;

7 reduced EF; 3 possible arrhythmogenic RV cardiomyopathy; 3 aortic root enlargement; and 1 noncompaction. Routine L2DE more frequently identified students with abnormalities as compared to selected use of L2DE (3.31% vs. 0.94%, $P < 0.001$). The prevalence of specific structural abnormalities was also higher with routine use of L2DE (table). Conclusion: Adding routine L2DE to a student athlete screening program resulted in increased sensitivity of the screening, identifying significant abnormalities. Prospective management of these abnormalities once identified may reduce risk of serious complications.

Perez-Cruet M, Beeravolu N, McKee C, **Brougham J**, Khan I, Bakshi S and Chaudhry GR (2018). "Potential of human nucleus pulposus-like cells derived from umbilical cord to treat degenerative disc disease." *Neurosurgery*: nyy012-nyy012.

[Full Text](#)

Department of Neurosurgery

OUWB Medical Student Author

BACKGROUND: Degenerative disc disease (DDD) is a common spinal disorder that manifests with neck and lower back pain caused by the degeneration of intervertebral discs (IVDs). Currently, there is no treatment to cure this debilitating ailment.**OBJECTIVE:** To investigate the potential of nucleus pulposus (NP)-like cells (NPCs) derived from human umbilical cord mesenchymal stem cells (MSCs) to restore degenerated IVDs using a rabbit DDD model.**METHODS:** NPCs differentiated from MSCs were characterized using quantitative real-time reverse transcription polymerase chain reaction and immunocytochemical analysis. MSCs and NPCs were labeled with fluorescent dye, PKH26, and transplanted into degenerated IVDs of a rabbit model of DDD ($n = 9$ each). Magnetic resonance imaging of the IVDs was performed before and after IVD degeneration, and following cell transplantation. IVDs were extracted 8 wk post-transplantation and analyzed by various biochemical, immunohistological, and molecular techniques.**RESULTS** NPC derivatives of MSCs expressed known NP-specific genes, SOX9, ACAN, COL2, FOXF1, and KRT19. Transplanted cells survived, dispersed, and integrated into the degenerated IVDs. IVDs augmented with NPCs showed significant improvement in the histology, cellularity, sulfated glycosaminoglycan and water contents of the NP. In addition, expression of human genes, SOX9, ACAN, COL2, FOXF1, KRT19, PAX6, CA12, and COMP, as well as proteins, SOX9, ACAN, COL2, and FOXF1, suggest NP biosynthesis due to transplantation of NPCs. Based on these results, a molecular mechanism for NP regeneration was proposed.**CONCLUSION** The findings of this study demonstrating feasibility and efficacy of NPCs to regenerate NP should spur interest for clinical studies to treat DDD using cell therapy.

Qin A, Liang J, Han X, O'Connell N and **Yan D** (2018). "Technical note: The impact of deformable image registration methods on dose warping." *Medical Physics* 45(3): 1287-1294.

[Full Text](#)

Department of Radiation Oncology

Purpose The purpose of this study was to investigate the clinical-relevant discrepancy between doses warped by pure image based deformable image registration (IM-DIR) and by biomechanical model based DIR (BM-DIR) on intensity-homogeneous organs. **Methods and materials** Ten patients (5Head&Neck, 5Prostate) were included. A research DIR tool (ADMRIE_v1.12) was utilized for IM-DIR. After IM-DIR, BM-DIR was carried out for organs (parotids, bladder, and rectum) which often encompass sharp dose gradient. Briefly, high-quality tetrahedron meshes were generated and deformable vector fields (DVF) from IM-DIR were interpolated to the surface nodes of the volume meshes as boundary condition. Then, a FEM solver (ABAQUS_v6.14) was used to simulate the displacement of internal nodes, which were then interpolated to image-voxel grids to get the more physically plausible DVF. Both geometrical and subsequent dose warping discrepancies were quantified between the two DIR methods. Target registration discrepancy (TRD) was evaluated to show the geometry difference. The re-calculated doses on second CT were warped to the pre-treatment CT via two DIR. Clinical-relevant dose parameters and γ passing rate were compared between two types of warped dose. The correlation was evaluated between parotid shrinkage and TRD/dose discrepancy. **Result** The parotid shrunk to $75.7\% \pm 9\%$ of its pre-treatment volume and the percentage of volume with $TRD > 1.5$ mm) was $6.5\% \pm 4.7\%$. The normalized mean-dose difference (NMDD) of IM-DIR and BM-DIR was $-0.8\% \pm 1.5\%$, with range (-4.7% to 1.5%). 2 mm/2% passing rate was $99.0\% \pm 1.4\%$. A moderate correlation was found between parotid shrinkage and TRD and NMDD. The bladder had a NMDD of $-9.9\% \pm 9.7\%$, with

BM-DIR warped dose systematically higher. Only minor deviation was observed for rectum NMDD ($0.5\% \pm 1.1\%$). Conclusion Impact of DIR method on treatment dose warping is patient and organ-specific. Generally, intensity-homogeneous organs, which undergo larger deformation/shrinkage during treatment and encompass sharp dose gradient, will have greater dose warping uncertainty. For these organs, BM-DIR could be beneficial to the evaluation of DIR/dose-warping uncertainty.

Quindry JC and **Franklin BA** (2018). "Cardioprotective exercise and pharmacologic interventions as complementary antidotes to cardiovascular disease." Exercise and Sport Sciences Reviews 46(1): 5-17.

[Full Text](#)

Department of Internal Medicine

Exercise and pharmacologic therapies to prevent and treat cardiovascular disease have advanced largely through independent efforts. Understanding of first-line drug therapies, findings from preclinical animal studies, and the need for research initiatives related to complementary cardioprotective exercise-pharma interventions are reviewed from the premise that contemporary cardioprotective therapies must include adjunctive exercise and lifestyle interventions in addition to pharmacologic agents.

Said A and **Halalau A** (2018). "The curse of relieving pain." BMJ Case Reports 2018: 222842.

[Full Text](#)

Department of Internal Medicine

A 39-year-old woman with a history of chronic back pain due to spinal haemangiomas, multiple malignancies and depression was brought by Emergency medical services to the emergency centre (EC) after being found unresponsive on the bathroom floor. The patient had an exacerbation of her back pain the previous day for which she admitted to taking double her usual dose of oxycodone, in addition to alprazolam, lorazepam, diphenhydramine and a glass of wine. She reported that she lost consciousness and was down for over 8 hours. In the EC, she complained of right forearm pain which was accompanied by mild diffuse soft-tissue swelling and decreased sensation in the right hand. Radial pulse was intact. Creatine kinase was found to be at 4663 U/L. The patient was found to have acute compartment syndrome and underwent emergent forearm fasciotomy. She eventually regained full function of the right arm.

Salman B, Sharma J, Knapp A, Akay B and Gibson D (2018). "Kaposiform hemangioendothelioma causing intestinal obstruction." Journal of Pediatric Surgery Case Reports 28: 9-12.

[Full Text](#)

Department of Pediatrics

OUWB Medical Student Author

A previously healthy toddler with bilious vomiting and erythematous gluteal rash over 2 weeks had intermittent pain, constipation and decreased appetite. All labs were negative with the exception of fecal occult blood. Abdominal x-ray and ultrasound revealed dilated air-filled loops of bowel and partial small bowel obstruction. After persistent worsening abdominal pain and vomiting a CT scan with IV contrast (Fig. 1) suggested small bowel obstruction. Emergent surgery was performed and diagnostic laparoscopy revealed about 61 cm of necrotic bowel causing stricture formation and mesenteric shortening in the distal small bowel. 56 cm of inflamed bowel was resected with end-to-end anastomosis. Final pathology report indicated diffuse intestinal angiomatosis with transmural involvement and focal erosion consistent with KHE (Fig. 2). Presentation is varied, consists of cutaneous lesion, retroperitoneal mass, intestinal obstruction, jaundice, intussusception, or multifocal neoplasms. Complete surgical resection with wide margins is the best therapeutic option and has achieved the best outcomes. If not treated in sufficient time, KHE has a relatively high mortality rate of 30%, with most deaths occurring due to its locally invasive effects [5]. There are limited reports of identifying features of KHE on imaging. Of 165 cases of KHE none were presented in the small bowel [5]. We report the unique case of KHE presenting as a hypervascular mass causing obstruction in the distal small bowel. Although extremely rare, KHE should be considered as a reason for severe GI stricture or obstruction in infants and children in obscure cases and included in the differential.

Schlachter D, Black EH and Gladstone GJ (2018). "Eyelid retraction and lagophthalmos," In Gladstone GJ, Nesi FA and Black EH (ed). Oculoplastic Surgery Atlas: Eyelid and Lacrimal Disorders. Cham: Springer International Publishing. pp: 27-37.

[Full Text](#)

Department of Ophthalmology

Eyelid retraction and lagophthalmos are common conditions encountered in ophthalmology. Diagnosis and appropriate management involve a systematic approach, beginning with a complete history. The surgeon must also be aware of conditions that could potentially worsen these problems. A thorough history and physical examination will help the physician avoid misdiagnosis and inappropriate surgical intervention.

Schutt CA, **Sargent E, Kabolizadeh P, Grills IS** and **Jacob J** (2018). "Proton beam radiation-induced glioblastoma multiforme." Journal of Neurosurgical Sciences. ePub Ahead of Print.

[Request Form](#)

Department of Surgery

Department of Radiation Oncology

Department of Neurosurgery

Shams A, **Hung J** and **Bahl A** (2018). "Ability of computed tomography to predict right heart strain on an echocardiogram in patients with acute pulmonary embolus." Journal of Biological Regulators and Homeostatic Agents 32(2): 365-370.

[Request Form](#)

Department of Emergency Medicine

OUWB Medical Student Author

Patients with submassive pulmonary embolism (PE) resulting in right heart strain (RHS) have an increased risk of mortality compared to those with a preserved right ventricular function. This study aimed to investigate the predictive value of computed tomography pulmonary angiogram (CTPA) findings of right heart strain in patients with computed tomography (CT)-proven PE for the diagnosis of right heart strain by echocardiogram (ECHO). The institutional review board (IRB) approved retrospective chart review of the adult emergency department patients diagnosed with an acute PE between 2012 and 2016. A total of 128 patients diagnosed with RHS by CT who had received an ECHO during their hospitalization were included in the study. Descriptive statistics were run for the variables of interest. The majority of patients (101 patients) with reported findings of RHS on CT had similar findings on ECHO. In our cohort, a finding of enlarged right atrium (RA) on CT was 100% predictive of RHS diagnosis on ECHO, whereas having interventricular septal bowing alone on CT was the least predictive of RHS on subsequent ECHO (61%). The 2 remaining subgroups: right ventricle (RV) enlargement alone and RV enlargement with either interventricular septal bowing/hepatic vein blood reflux or both lies somewhere in between, with 80% of these patients showing strain on ECHO. We found that signs of RHS on CT are predictive of strain on an ECHO (78%) and RA enlargement in any combination was the most predictive finding of RHS on ECHO (100%). Future prospective randomized investigations are needed to confirm such findings.

Sharma R and **Randhawa S** (2018). "Hemorrhagic ischemic retinal vasculitis and alopecia areata as a manifestation of HLA-B27." Ophthalmic Surgery Lasers and Imaging Retina 49(1): 60-63.

[Request Form](#)

Department of Ophthalmology

A 12-year-old Indian boy presented with acute and severe vision loss in his right eye. He was being treated for scalp alopecia areata and rashes behind the ears and above the brow. The eye examination revealed unilateral hemorrhagic retinal vasculitis. The lab work was normal except for a positive HLA-B27 result. The patient was treated with intravitreal bevacizumab (Avastin; Genentech, South San Francisco, CA) and systemic immunosuppression. The retinal vasculitis improved with treatment, but visual acuity only mildly improved. The alopecia areata also improved with systemic immunosuppression.

Sierra CA and **Gladstone GJ** (2018). "Direct eyebrow lift," In Gladstone GJ, Nesi FA and Black EH (ed). Oculoplastic Surgery Atlas : Cosmetic Facial Surgery. Cham: Springer International Publishing. pp: 27-29.

[Full Text](#)

Department of Ophthalmology

Before moving to more complex approaches such as the endoscopic eyebrow lift, the surgeon must master the fundamental concepts of preoperative evaluation, indications for surgery, surgical anatomy, and the

basic direct browlift procedure.

Siljander MP, Sobh AH, **Baker KC, Baker EA** and **Kaplan LM** (2018). "Multidrug-resistant organisms in the setting of periprosthetic joint infection—diagnosis, prevention, and treatment." Journal of Arthroplasty 33(1): 185-194.

[Full Text](#)

Department of Orthopedic Surgery

Background Periprosthetic joint infection (PJI) is a rare yet challenging problem in total hip and knee arthroplasties. The management of PJI remains difficult primarily due to the evolution of resistance by the infecting organisms. Methods This review profiles acquired mechanisms of bacterial resistance and summarizes established and emerging techniques in PJI diagnosis, prevention, and treatment. Results New techniques in PJI diagnosis and prevention continue to be explored. Antibiotics combined with 1 or 2-stage revision are associated with the higher success rates and remain the mainstay of treatment. Conclusion With higher prevalence of antibiotic-resistant organisms, novel antibiotic implant and wound care materials, improved methods for organism identification, and well-defined organism-specific treatment algorithms are needed to optimize outcomes of PJI.

Sirls ER, Killinger KA, Boura JA and **Peters KM** (2018). "Percutaneous tibial nerve stimulation in the office setting: Real-world experience of over 100 patients." Urology 113: 34-39.

[Full Text](#)

Department of Urology

Objective: To examine the outcomes and compliance with percutaneous tibial nerve stimulation (PTNS) for overactive bladder (OAB) symptoms. Methods: Adults who had PTNS from June 30, 2011, to October 8, 2015, were retrospectively reviewed for demographics, copay, travel distance, employment status, history, symptoms, and treatments used before, during, and after PTNS. Pearson chi-square test, Fisher exact test, Wilcoxon rank and paired t test were performed. Results: Of 113 patients (mean age 75 ± 12 years), most were women (65.5%), married (78.1%), and retired or unemployed (80.2%). The median distance to the clinic was 8.1 mi, and the median copay was \$0. The most common indication for PTNS was nocturia (92.9%) followed by OAB with urgency urinary incontinence (75.2%) and urinary urgency and/or frequency (24.8%). Prior treatments included anticholinergics (75.2%), mirabegron (36.6%), behavioral modification (29.2%), pelvic floor physical therapy (18.6%), and others (19.5%). Patients completed a mean of 10.5 ± 3 of 12 planned weekly PTNS treatments. Of 105 patients, 40 (38.1%) used concomitant treatments (most commonly anticholinergics). Of 87 patients, 62 (71.3%) had decreased symptoms at 6 weeks, and of 85 patients, 60 (70.6%) had decreased symptoms at 12 weeks. The majority (82; 75.6%) completed all 12 weekly treatments and 45 (54.9%) completed 3 (median) monthly maintenance treatments. The most common reason for noncompliance was lack of efficacy. Visit copay, employment status, and distance to the clinic were not associated with failure to complete weekly treatments or progression to monthly maintenance. Conclusion: Although most patients' symptoms decreased after weekly PTNS, nonadherence to maintenance and lack of efficacy may limit long-term feasibility. Copay and distance traveled were not associated with noncompliance.

Sparks MA and **Topf JM** (2018). "NephMadness after 5 years: A recap and game plan for the future." American Journal of Kidney Diseases 71(3): 299-301.

[Full Text](#)

Department of Internal Medicine

Stropp T, Barbat J, **Burla M, Berger D** and **Sawyer K** (2018). "Evaluating a novel one-month resuscitation rotation for second-year emergency medicine residents." Critical Care Medicine 46(1): 170-170.

[Full Text](#)

Department of Emergency Medicine

Learning Objectives: Emergency medicine (EM) residents are trained to care for patients across the spectrum of clinical disease. Many of these patients are critically ill, requiring emergent resuscitative intervention. A novel one-month rotation was implemented within the post-graduate year (PGY) 2 curriculum of a well-established three-year EM residency program at a large tertiary referral center with approximately 129,000 visits annually. This "resuscitation" rotation focuses on increased time at bedside for high-acuity patients

with attention to sepsis, cardiac arrest, pulmonary embolism, and neuro-devastation. Additionally, there are resident-led weekly discussions of high yield cases and review of pertinent literature on the same resuscitation topic. The aim of this study is to utilize our pilot evaluation to assess the effectiveness of the resuscitation rotation using quantitative and qualitative measures. Methods: One or two PGY-2 EM residents per month typically complete the rotation and spend a minimum of 40 clinical hours per week. Residents were surveyed over a 10-month period using mixed-methods pre-post survey questionnaires. The questionnaires were developed to assess baseline changes across several parameters: perception of self-efficacy, confidence in situational management and skill performance, objective fund of knowledge, opinions of value, and thematic analysis of open-ended responses. The questions in the pre and post surveys are identical, validating their equivalence. Results: Ten subjects (N = 10) had matching pre-post survey responses. Statistically significant changes were noted in several parameters. In perception of self-efficacy, mean scores on a 1 to 5 scale increased by 0.70 (p = 0.001). Mean scores for confidence in leading a resuscitation increased by 0.60 (p = 0.005). Mean scores for anxiety level when performing a thoracentesis and recognizing different cardiac arrhythmias decreased by 0.90 (p = 0.004) and 0.40 (p = 0.037), respectively. Involvement in resuscitation of septic patients increased by 0.80 (p = 0.003). There was no significant difference in objective fund of knowledge (p = 0.074). Conclusions: Preliminary survey data suggests that this rotation provides a robust training experience as an adjunct to the PGY-2 EM curriculum. Continued evaluation of the resident experience on the rotation is warranted.

Sura K, **Grills IS**, Vu CC, **Stevens CW**, Ye H and **Guerrero TM** (2018). "Improved survival with increased time-to-radiation and sequential chemotherapy after surgery for pN2 non-small-cell lung cancer." Clinical Lung Cancer 19(2): e185-e194.

[Full Text](#)

Department of Radiation Oncology

Background: Currently, the ideal timing for postoperative radiotherapy (PORT) and chemotherapy is unknown. The present study evaluated their relative timing on overall survival (OS) using the National Cancer Database (NCDB). Materials and Methods: The NCDB was queried for patients from 2004 to 2012 with resected non-small-cell lung cancer (NSCLC), pathologically involved N2 (pN2) nodes, and negative margins. All patients underwent adjuvant chemotherapy and external beam radiotherapy. The time to radiation (TTR) was determined from the date of surgery to the start of PORT, with the exclusion of those receiving PORT < 4 weeks or > 24 weeks postoperatively. Early and late TTR was dichotomized at 8 weeks after receiver operating characteristic analysis. Multivariate Cox regression analysis was conducted to predict the variables significantly associated with survival. Results: A total of 1629 patients were eligible for analysis. Of the 1629 patients, 703 had received PORT < 8 weeks and 926 had received PORT ≥ 8 weeks postoperatively. The receipt of PORT after 8 weeks was associated with better OS (P = .0044). No significant differences were found in survival in the concurrent group comparing early and later TTR (P = .9119). However, a significant OS benefit was found for sequential chemotherapy with an increased TTR (P = .0045). Older age, male sex, shorter distance traveled, increased nodal positivity, larger tumor size, higher Charlson/Deyo comorbidity score, and early TTR were associated with inferior survival on multivariate analysis. Conclusion: A TTR of ≥ 8 weeks with sequential chemotherapy in the setting of PORT was associated with improved survival in patients with NSCLC with pN2 nodes.

Sura K, Lischalk JW, **Grills IS**, Mundt AJ, Wilson LD and Vapiwala N (2018). "Contemporary analysis of the prevalence of illegal match questions during medical student residency interviews." International Journal of Radiation Oncology Biology Physics 100(4): 1075-1078.

[Full Text](#)

Department of Radiation Oncology

Swamy L, Beare NAV, Okonkwo O and **Mahmoud TH** (2018). "Funduscopy in cerebral malaria diagnosis: An international survey of practice patterns." American Journal of Tropical Medicine and Hygiene 98(2): 516-519.

[Full Text](#)

Department of Ophthalmology

Cerebral malaria (CM) is a significant cause of mortality and morbidity in sub-Saharan Africa, particularly among young children. Malarial retinopathy is the most specific clinical finding in CM, and fundus

examination could help clinicians distinguish CM from other causes of encephalopathy in resource-poor areas. To assess clinician knowledge, practice patterns, and barriers to the use of funduscopy in the diagnosis of CM, we designed a descriptive multinational survey of clinicians in malaria endemic areas. Results of this survey showed that 19% of respondents were not aware of the utility of eye examinations for malarial retinopathy, and almost half (49%) never or almost never examine the eyes in cases of suspected CM. Educating clinicians about malarial retinopathy could be important in improving diagnostic specificity for CM.

Thibodeau BJ, Lavergne V, **Dekhne N**, Benitez P, **Amin M**, Ahmed S, Nakamura JL, Davidson PR, Nakamura AO, **Grills IS**, **Chen PY**, Wobb J and **Wilson GD** (2018). "Mutational landscape of radiation-associated angiosarcoma of the breast." *Oncotarget* 9(11): 10042-10053.

[Full Text](#)

Department of Surgery

Department of Pathology

Department of Radiation Oncology

Purpose: Radiation-associated breast angiosarcomas are a rare complication of radiation therapy for breast carcinoma. With relatively little is known about the genetic abnormalities present in these secondary tumors, we examined genomic variation in biospecimens from radiation-associated breast angiosarcomas.

Experimental Design: Patients were identified that had a previous breast cancer diagnosis, received radiation therapy, and developed angiosarcoma in the ipsilateral breast as the earlier cancer. Tumor regions were isolated from archival blocks using subsequent laser capture microdissection. Next generation sequencing was performed using a targeted panel of 160 cancer-related genes. Genomic variants were identified for mutation and trinucleotide-based mutational signature analysis. Results: 44 variants in 34 genes were found in more than two thirds of the cases; this included 12 variants identified as potentially deleterious. Of particular note, the BRCA1 DNA damage response pathway was highly enriched with genetic variation. In a comparison to local recurrences, 14 variants in 11 genes were present in both the primary and recurrent lesions including variants in genes associated with the DNA damage response machinery. Furthermore, the mutational signature analysis shows that a previously defined IR signature is present in almost all of the current samples characterized by predominantly C->T substitutions. Conclusions: While radiation-associated breast angiosarcomas are relatively uncommon, their prognosis is very poor. These data demonstrate a mutational pattern associated with genes involved in DNA repair. While important in revealing the biology behind these tumors, it may also suggest new treatment strategies that will prove successful.

Tutolo M, Ammirati E, Heesakkers J, Kessler TM, **Peters KM**, Rashid T, Sievert K-D, Spinelli M, Novara G, Van der Aa F and De Ridder D (2018). "Efficacy and safety of sacral and percutaneous tibial neuromodulation in non-neurogenic lower urinary tract dysfunction and chronic pelvic pain: A systematic review of the literature." *European Urology* 73(3): 406-418.

[Full Text](#)

Department of Urology

Context: Neuromodulation is considered in patients with non-neurogenic lower urinary tract dysfunction (LUTD) not responsive to conservative treatment. Objective: To systematically review the available studies on efficacy and safety of sacral neuromodulation (SNM) and percutaneous tibial nerve stimulation (PTNS) in non-neurogenic LUTDs not responsive to conservative treatments. Evidence acquisition: A literature research was conducted in PubMed/Medline and Scopus, restricted to articles in English, published between January 1998 and June 2017, with at least 20 patients and 6 mo of follow-up. Evidence synthesis: Twenty-one reports were identified. Concerning SNM, the improvement of $\geq 50\%$ in leakage episodes ranged widely between 29% and 76%. Overall dry rate ranged between 43% and 56%. Overall success/improvement rate in PTNS varied between 54% and 59%. Symptom improvement or efficacy in interstitial cystitis/bladder pain syndrome patients appeared to be lower compared with other indications in both techniques. Safety data showed fewer side effects in patients submitted to PTNS. Conclusions: Neuromodulation gives good results and is a safe therapy for patients with overactive bladder or chronic nonobstructive urinary retention with long-lasting efficacy. Moreover, PTNS has been shown to have good success rates and fewer side effects compared with SNM. These data have to be confirmed with long-term follow-up. Patient summary: Sacral

neuromodulation can improve low urinary tract symptoms in selected patients; it appears to be a safe therapy for nonresponders to standard medical therapies. Percutaneous tibial nerve stimulation (PTNS) is a less invasive technique that gives good results in short time with fewer side effects. However, we must consider that PTNS has not been tested in the long term and results are lower if compared with SNM.

Wang WG, Ye H and **Chinnaiyan P** (2018). "Practice patterns and survival outcomes of intracranial germinoma: an analysis of the National Cancer Database." Journal of Neuro-Oncology 137(1): 77-82.

[Full Text](#)

Department of Radiation Oncology

The goal of the study is to examine the practice pattern and survival outcome of adult and pediatric patients with intracranial germinoma. Patients from the National Cancer Database (NCDB) brain tumor registry between the years 2004–2014 with intracranial germinoma were extracted for analysis. Patients who had distant metastasis, received no treatments, or only surgery/chemotherapy alone were excluded. An age cutoff of > 21 years old was used to define the pediatric population. Patients were stratified by the treatments radiation therapy alone (RT) and chemotherapy followed by radiation therapy (C + RT). 445 patients with intracranial germinoma meeting our inclusion criteria were identified. Of the adult patients, 65.7% received RT and 34.3% received C + RT, compared to the pediatric patients, where 31.8% received RT and 68.2% received C + RT. Those patients who received C + RT had a lower radiation dose compared to the RT group ($p < 0.001$). The 5 and 10 year overall survival (OS) for the entire cohort was 92.6 and 87.9%, respectively. Univariate analysis demonstrated improved OS with younger age, private insurance, C + RT treatment, and pediatric patients. Only age and insurance type remained significant on multivariate analysis. The 5 year OS was 92.6% (RT) versus 97.2% (C + RT) ($p = 0.307$) and 83.4% (RT) versus 95.4% (C + RT) ($p = 0.122$) in the pediatric and adult patients, respectively. There is a higher use of C + RT with an accompanied reduction in RT dose in the treatment of intracranial germinoma. There is no difference in survival between the treatment approaches of RT or C + RT in the NCDB patient cohort.

Wedemeyer R, Soriano M, Roach V and Lucia V (2018). "Developing the Passport to Medicine program: Encouraging middle school students to explore a future career in healthcare (iCollaborative)." MedEdPortal Resource ID <https://icollaborative.aamc.org/resource/4510/>

Department of Foundational Medical Studies

OUWB Medical Student Author

Department of Medical Education

The Passport to Medicine program – a longitudinal pipeline initiative with a partner school district – aims to encourage middle school students, living in an underserved community with a significant population of racial and ethnic minorities, to participate in educationally enriching activities developed to nurture interest in the healthcare professions. This resource provides an overview of the development of the Passport to Medicine program.

Weiner AJ, Weiner Y, Severson ML and Weiner A (2018). "Clinical experience with urgent tube shunt implantation through the ciliary sulcus in phakic eyes." International Ophthalmology. ePub Ahead of Print.

[Full Text](#)

OUWB Medical Student Author

Purpose: To review the clinical course and outcomes of 3 phakic, ischemic, and inflamed eyes in which we performed urgent tube shunt implantation through the ciliary sulcus without lensectomy. Methods: This is a retrospective interventional case series. Three eyes of 3 diabetic patients with uncontrolled severe neovascular glaucoma, shallow anterior chambers with closed angles and poor view to the posterior segment, where concomitant lensectomy was not recommended due to uncontrolled uveitis and ischemia, underwent tube shunt implantation through the ciliary sulcus. Main outcome measures were surgical complications, especially injury to the crystalline lens, and postoperative intraocular pressure (IOP). Results: No surgical complications, including injury to the crystalline lens, have occurred. We used surgical modifications to allow sufficient visualization of the sulcus area to avoid injury to the crystalline lens during scleral tunneling and tube insertion through the ciliary sulcus. Postoperatively, the uveitis, ischemia, and vision have improved and IOP was controlled throughout follow-up. Cataract surgery with pupilloplasty was performed in one eye a year later with no complications and no interruption to IOP control. Conclusions:

Based on our small and limited retrospective study, and under unusual circumstances, urgent tube shunt implantation through the ciliary sulcus may be considered in phakic eyes with severely uncontrolled IOP, shallow anterior chambers and poor view to the posterior segment, and when concomitant lensectomy is not recommended. We advise the use of appropriate surgical modifications by experienced glaucoma surgeons to prevent intraoperative complications. Further and larger studies are needed to evaluate the safety of this surgical option.

Winkler KP and **Gladstone GJ** (2018). "Floppy eyelid syndrome," In Gladstone GJ, Nesi FA and Black EH (ed). Oculoplastic Surgery Atlas: Eyelid and Lacrimal Disorders. Cham: Springer International Publishing. pp: 67-69.

[Full Text](#)

Department of Ophthalmology

Floppy eyelid syndrome (FES) is an eyelid malposition characterized by increased horizontal eyelid laxity. Patients most often present with complaints of mucus discharge and ocular irritation, which is worse and more frequent upon awakening. There is a papillary conjunctivitis, most prominent on the upper tarsal conjunctiva, and the upper eyelid is easily everted with upward traction on the lid.

Xie JX, Cury RC, Leipsic J, Crim MT, Berman DS, Gransar H, Budoff MJ, Achenbach S, Ó Hartaigh B, Callister TQ, Marques H, Rubinshtein R, Al-Mallah MH, Andreini D, Pontone G, Cademartiri F, Maffei E, **Chinnaiyan K, Raff G**, Hadamitzky M, Hausleiter J, Feuchtner G, Dunning A, DeLago A, Kim YJ, Kaufmann PA, Villines TC, Chow BJW, Hindoyan N, Gomez M, Lin FY, Jones E, Min JK and Shaw LJ (2018). "The coronary artery disease-reporting and data system (CAD-RADS): prognostic and clinical implications associated with standardized coronary computed tomography angiography reporting." JACC: Cardiovascular Imaging 11(1): 78-89.

[Full Text](#)

Department of Internal Medicine

Objectives: This study sought to assess clinical outcomes associated with the novel Coronary Artery Disease-Reporting and Data System (CAD-RADS) scores used to standardize coronary computed tomography angiography (CTA) reporting and their potential utility in guiding post-coronary CTA care. **Background:** Clinical decision support is a major focus of health care policies aimed at improving guideline-directed care. Recently, CAD-RADS was developed to standardize coronary CTA reporting and includes clinical recommendations to facilitate patient management after coronary CTA. **Methods:** In the multinational CONFIRM (CORonary CT Angiography Evaluation For Clinical Outcomes: An InteRnational Multicenter) registry, 5,039 patients without known coronary artery disease (CAD) underwent coronary CTA and were stratified by CAD-RADS scores, which rank CAD stenosis severity as 0 (0%), 1 (1% to 24%), 2 (25% to 49%), 3 (50% to 69%), 4A (70% to 99% in 1 to 2 vessels), 4B (70% to 99% in 3 vessels or \geq 50% left main), or 5 (100%). Kaplan-Meier and multivariable Cox models were used to estimate all-cause mortality or myocardial infarction (MI). Receiver-operating characteristic (ROC) curves were used to compare CAD-RADS to the Duke CAD Index and traditional CAD classification. Referrals to invasive coronary angiography (ICA) after coronary CTA were also assessed. **Results:** Cumulative 5-year event-free survival ranged from 95.2% to 69.3% for CAD-RADS 0 to 5 ($p < 0.0001$). Higher scores were associated with elevations in event risk (hazard ratio: 2.46 to 6.09; $p < 0.0001$). The ROC curve for prediction of death or MI was 0.7052 for CAD-RADS, which was noninferior to the Duke Index (0.7073; $p = 0.893$) and traditional CAD classification (0.7095; $p = 0.783$). ICA rates were 13% for CAD-RADS 0 to 2, 66% for CAD-RADS 3, and 84% for CAD-RADS \geq 4A. For CAD-RADS 3, 58% of all catheterizations occurred within the first 30 days of follow-up. In a patient subset with available medication data, 57% of CAD-RADS 3 patients who received 30-day ICA were either asymptomatic or not receiving antianginal therapy at baseline, whereas only 32% had angina and were receiving medical therapy. **Conclusions:** CAD-RADS effectively identified patients at risk for adverse events. Frequent ICA use was observed among patients without severe CAD, many of whom were asymptomatic or not taking antianginal drugs. Incorporating CAD-RADS into coronary CTA reports may provide a novel opportunity to promote evidence-based care post-coronary CTA.

Ziegler M and Ziegler MM (2018). "The spectrum of pediatric surgical ethics," In Jacobs L (ed). Practical Ethics for the Surgeon. Wolters Kluwer Health Adis (ESP). pp: 98-111.

[Request Form](#)

Department of Surgery

