

OAKLAND UNIVERSITY WILLIAM BEAUMONT SCHOOL OF MEDICINE

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Abbas AE (2015). "Different classifications of aortic stenosis," In Abbas AE (ed). [Aortic stenosis: Case-based diagnosis and therapy](#). London: Springer. pp: 49-54.

[Full-Text](#)

Department of Internal Medicine

Different classification systems for aortic stenosis (AS) exist depending on the underlying pathology and native versus prosthetic AS, stages of progression, severity of AS, ejection fraction (EF) and flow, and the presence of area/gradients concordance. © Springer-Verlag London 2015. All rights reserved.

Abbas AE, Hanson I and Pica MC (2015). "Invasive evaluation of aortic stenosis," In Abbas AE (ed). [Aortic stenosis: Case-based diagnosis and therapy](#). London: Springer. pp: 55-69.

[Full-Text](#)

Department of Internal Medicine

In the current valvular guidelines, Doppler Echocardiography is considered the mainstay of diagnosis aortic valve stenosis. Invasive assessment of aortic valve stenosis is reserved in those cases with inconclusive non-invasive studies, discrepant clinical and Doppler findings, and for research purposes prior to TAVR. In this chapter we will review the different methods of invasive assessment of aortic valve stenosis by both gradient and area measures, the indications, the advantages, and the pitfalls. We will also briefly review the invasive hemodynamics of hypertrophic obstructive cardiomyopathy. © Springer-Verlag London 2015. All rights reserved.

Al-Faham Z, Jolepalem P and **Wong CO** (2015). "The evaluation of cardiac sarcoidosis with 18F-FDG PET scan." [Journal of Nuclear Medicine Technology](#). ePub Ahead of Print.

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Department of Diagnostic Radiology and Molecular Imaging

Al-faham Z, Muhleman MA, **Wu D** and **Wong C** (2015). "High correlation of image based TC-99M pertechnetate estimation of trapping uptake with 24-hour I-131 uptake." Thyroid 25: A317.

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Department of Diagnostic Radiology and Molecular Imaging

Thyroid morphology studies with Tc-99m Pertechnetate (99mTcP) has been extensively studied in many centers to be suitable for routine thyroid imaging due to its lower cost and radiation exposure and on-site availability and shorter time compared with 24-hour I-131 uptake (24IU). The purpose was to develop and validate a semi-automated quantitative method of determining 99mTcP with 24IU. Study Design: A retrospective study evaluating 49 99mTcP trapping by an image base method was correlated 24IU as the gold standard. Image Analysis: Regions of interest (ROI) were drawn around the thyroid contour (TROI) and the salivary glands (SROI) and their total counts of activity recorded. Statistical Analysis: Linear regressions of the ratio of logarithmic ratio of TROI counts to injected dose versus 24IU and image based trapping [TROI/(TROI + SROI)] was performed to test our assumption that the denominator (TROI + SROI) was indeed a reasonable estimation of total injected activity with Pearson's correlation with $p < 0.05$ being considered statistically significant. The quantitative 99mTcP trapping had a high correlation to the actual 24-hour 131I uptake. 99mTcP thyroid scans and its image based quantification of trapping predicts 24IU and can give a good estimation in shorter time and less radiation exposure. (Figure Presented).

Alpay Z, Dykowski M, Ogunyemi D, Cameron D, Nowakowski A, Betcher K and Qu S (2015). "What factors affect the mean duration of a cesarean section procedure?" International Journal of Gynecology and Obstetrics 131: E544-E545.

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Department of Obstetrics and Gynecology

Objectives: To determine the mean duration of performing a cesarean section and the associations with demographic, prenatal and intrapartum factors and, consequentially, the potential impact on clinical outcome. Method: Start time and stop time for cesarean procedures are routinely recorded in our health system. We obtained the obstetric cal electronic records of over 8000 term (>37 weeks), singleton neonates delivered in 2013. We calculated the mean duration of the cesarean section procedure. Both longest quartile and shortest quartiles for duration were compared with demographic, medical, obstetrical, intrapartum and maternal/fetal outcome factors. We used Chisquare, student T test and regression analysis as indicated. Results: Valid duration times were calculated for 2757 cesarean procedures. Factors that significantly predicted shortest or longest quartile of duration included BMI, maternal age, previous cesarean section, insurance type, marital status, ethnicity, failed induction, 2nd stage of labor, and use of vacuum extractor. Duration of cesarean section was significantly predictive of umbilical blood gas results and blood loss ($p \leq 0.001$). Regression analysis showed that BMI and 2nd stage of labor were independent predictors of the longest quartile of cesarean section duration, and that duration was independently predictive of umbilical blood gas values and blood loss. Conclusions: We have demonstrated factors that predict duration of cesarean section procedures and have shown that duration may potentially affect clinical outcome.

Anderson MB, **Goldstein J**, Milano C, Morris LD, Kormos RL, Bhamra J, Kapur NK, Bansal A, Garcia J, Baker JN, Silvestry S, Holman WL, Douglas PS and O'Neill W (2015). "Benefits of a novel percutaneous ventricular assist device for right heart failure: The prospective RECOVER RIGHT study of the Impella RP device." Journal of Heart and Lung Transplantation 34(12): 1549-1560.

[Full-Text](#)

Department of Internal Medicine

Background Right ventricular failure (RVF) increases morbidity and mortality. The RECOVER RIGHT study evaluated the safety and efficacy of a novel percutaneous right ventricular assist device, the Impella RP (Abiomed, Danvers, MA), in a prospective, multicenter trial. Methods Thirty patients with RVF refractory to medical treatment received the Impella RP device at 15 United States institutions. The study population included 2 cohorts: 18 patients with RVF after left ventricular assist device (LVAD) implantation (Cohort A) and 12 patients with RVF after cardiomyopathy or myocardial infarction (Cohort B). The primary end point was survival to 30 days or hospital discharge (whichever was longer). Major secondary end points included indices of safety and efficacy. Results The patients (77% male) were a mean age of 59 ± 15 years, 53% had

diabetes, 88.5% had a history of congestive heart failure, and 37.5% had renal dysfunction. Patients were on an average of 3.2 inotropes/pressors. Device delivery was achieved in all but 1 patient. Hemodynamics improved immediately after initiation of Impella RP support, with an increase in cardiac index from 1.8 ± 0.2 to 3.3 ± 0.23 liters/min/m² ($p < 0.001$) and a decrease in central venous pressure from 19.2 ± 4 to 12.6 ± 1 mm Hg ($p < 0.001$). Patients were supported for an average of 3.0 ± 1.5 days (range, 0.5-7.8 days). The overall survival at 30 days was 73.3%. All patients discharged were alive at 180 days. Conclusions In patients with life-threatening RVF, the novel percutaneous Impella RP device was safe, easy to deploy, and reliably resulted in immediate hemodynamic benefit. These data support its probable benefit in this gravely ill patient population. © 2015 International Society for Heart and Lung Transplantation.

Aschebrook-Kilfoy B, James B, **Nagar S**, Kaplan S, Seng V, Ahsan H, Angelos P, Kaplan EL, Guerrero MA, Kuo JH, Lee JA, Mitmaker EJ, Moalem J, Ruan DT, Shen WT and Grogan RH (2015). "Risk factors for decreased quality of life in thyroid cancer survivors: Initial findings from the North American Thyroid Cancer Survivorship Study." *Thyroid* 25(12): 1313-1321.

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Department of Surgery

Background: The prevalence of thyroid cancer survivors is rising rapidly due to the combination of an increasing incidence, high survival rates, and a young age at diagnosis. The physical and psychosocial morbidity of thyroid cancer has not been adequately described, and this study therefore sought to improve the understanding of the impact of thyroid cancer on quality of life (QoL) by conducting a large-scale survivorship study. Methods: Thyroid cancer survivors were recruited from a multicenter collaborative network of clinics, national survivorship groups, and social media. Study participants completed a validated QoL assessment tool that measures four morbidity domains: physical, psychological, social, and spiritual effects. Data were also collected on participant demographics, medical comorbidities, tumor characteristics, and treatment modalities. Results: A total of 1174 participants with thyroid cancer were recruited. Of these, 89.9% were female, with an average age of 48 years, and a mean time from diagnosis of five years. The mean overall QoL was 5.56/10, with 0 being the worst. Scores for each of the sub-domains were 5.83 for physical, 5.03 for psychological, 6.48 for social, and 5.16 for spiritual well-being. QoL scores begin to improve five years after diagnosis. Female sex, young age at diagnosis, and lower educational attainment were highly predictive of decreased QoL. Conclusion: Thyroid cancer diagnosis and treatment can result in a decreased QoL. The present findings indicate that better tools to measure and improve thyroid cancer survivor QoL are needed. The authors plan to follow-up on these findings in the near future, as enrollment and data collection are ongoing. © 2015 Mary Ann Liebert, Inc.

Ayoub C, Achenbach S, Al-Mallah M, Andreini D, Berman D, Budoff M, Cademartiri F, Callister T, Chang HJ, **Chinnaiyan K**, Cury R, Delago A, Dunning A, Feuchtner G, Gomez M, Hadamitzky M, Hausleiter J, Hindoyan N, Gransar H, Kaufmann P, Kim YJ, Jones E, Leipsic J, Lin F, Maffei E, Marques H, Min J, Pontone G, **Raff G**, Rubinshtein R, Shaw L, Gomez M, Villines T and Chow B (2015). "Validation of the prognostic value of percentage total plaque score normalized to age on coronary computed tomography: A potential measure of coronary atherosclerosis progression." *Journal of Cardiovascular Computed Tomography* 9(4): S35.

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Department of Internal Medicine

Introduction: Total plaque score (TPS) on coronary computed tomography angiography (CCTA) has been validated as a surrogate measure of atherosclerotic burden and has prognostic value. Measure of atherosclerotic progression has been advocated as a superior predictor of outcomes. Hence we proposed a novel measure that may account for plaque progression, percentage TPS normalized to age (%TPS/age), and found it had incremental prognostic value. We sought to validate the prognostic value of %TPS/age on CCTA. Methods: Consecutive patients were prospectively enrolled into the CONFIRM (Coronary CT Angiography Evaluation For Clinical Outcomes: An International Multicenter) multinational observational study. Patients were followed for the outcome of all cause death. %TPS/age ([Quotient of TPS and number of evaluable coronary segments] x100, divided by age) was calculated on CCTA for each patient, categorized into four groups based on cutoffs from our hypothesis generating study, and its potential prognostic value

assessed. Results: We identified 22,211 patients (mean age 58.5 ± 12.7 years, 55.8% male) with median follow up of 27.3 months [IQR 17.8, 35.4]. Patients with annual event rate (AER) varied according to %TPS/age category with %TPS/age=0, <0.314, 0.314-0.699 and ≥ 0.700 having AER of 0.2%, 0.61%, 2.0% and 3.2% respectively. After adjustment for clinical factors and presence of obstructive coronary artery disease (CAD), higher %TPS/age was associated with increased death on multivariable analysis with HR 2.40 (1.83-3.16), CStatistic 0.800 (0.713-0.877), $P < 0.001$, and a net reclassification improvement (NRI) for all cause death when %TPS/age was used in addition to clinical factors and obstructive CAD was 0.36 (0.26-0.47), $P < 0.01$. Conclusion: %TPS/age ratio has incremental prognostic value compared to traditional risk factors and CCTA measures, and may be a marker of atherosclerosis progression.

Babu S and Stucken E (2015). "Eustachian tube surgery," In Larouere MJ, Babu SC and Bojrab DI (ed). Surgical Techniques in Otolaryngology-Head and Neck Surgery: Otologic and Neurotologic Surgery. Daryaganj: Jaypee Brothers Medical Pub. pp: 5-10.

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Department of Surgery

Babu S and Stucken E (2015). "Otosclerosis and stapedectomy," In Larouere MJ, Babu SC and Bojrab DI (ed). Surgical Techniques in Otolaryngology-Head and Neck Surgery: Otologic and Neurotologic Surgery. Daryaganj: Jaypee Brothers Medical Pub. pp: 27-35.

[Request Form](#)

Department of Surgery

Bagan M and **Bahl A** (2015). "Comparison of nurse-performed ultrasound-guided versus standard of care intravenous access in emergency department patients with difficult access." Annals of Emergency Medicine 66(4): S137-S138.

[Full-Text](#)

Department of Emergency Medicine

Study Objective: To compare nurse-performed ultrasound-guided peripheral intravenous (USGPiV) access versus standard of care peripheral intravenous (SOCPiV) access in emergency department (ED) patients with difficult access. Methods: An IRB-approved pilot study was completed randomizing patients into two groups, USGPiV or SOCPiV, at a single site, Level I trauma tertiary care facility with over 120,000 annual emergency care visits. In the initial phase of this study, two groups of ten registered nurses (RNs) were trained in establishing peripheral IV access by either USGPiV (experimental group) or SOCPiV (control group). Both groups received 60 minutes of didactics respectively, and the USGPiV group received additional instruction and credentialing in establishing USGPiV access. The RNs in the USGPiV group were required to perform ten proctored successful USGPiV placements prior to enrolling any patients in the study. Patients were included in the study if they were 18+ years of age, presented to the ED and had a reported history of three or more peripheral IV attempts in a single clinical encounter to establish IV access, and at least one of the following four conditions: necessity for a rescue catheter (PICC or central venous catheter) as a result of that inability to obtain PiV access, current or past history of hemodialysis, sickle cell disease, or history of IV drug use. Patients are excluded if IV access was established prior to ED arrival. Outcomes measured include number of PiV attempts (one attempt per dermapuncture), time to PiV placement (defined as tourniquet to PiV secured with dressing), successful PiV placement (defined as able to aspirate blood and flush 10 cc normal saline), and patient satisfaction (1-10 subjective scale of patient's perception of IV experience), duration of PiV, the reason the PiV was removed, and its functional status at the time of removal. Results: Patient enrollment is an ongoing process. Thus far, 18 patients have been enrolled in the study, with ten randomized to the experimental USGPiV arm. For the number of PiV attempts, 60% of the USGPiV group was successful on the first attempt, while only 25% of the SOCPiV group was successful on the first attempt. For time to placement, USGPiV median was 10.1 minutes versus 17.7 minutes for SOCPiV. For successful IV placement, USGPiV was 80% successful versus 50% for SOCPiV (OR 4.0; 95% CI 0.35, 58.2). For patient satisfaction relating to their IV experience, USGPiV median was 8.5 versus 1.0 for SOCPiV. Preliminary data suggests there are no differences between the USGPiV and SOC groups for age, sex, blood pressure, or BMI. Conclusion: Our preliminary data suggests that nurses trained in placement of ultrasound-guided IV catheters can more successfully achieve

difficult IV access when compared to the traditional blind approach. There are several positive outcomes including decreased IV attempts, decreased time to placement, and improved patient satisfaction in the US-guided arm. Appropriately trained nurses should routinely use ultrasound guidance as the primary method in IV placement in difficult access patients. Further recruitment of patients is needed to validate these findings, and patient enrollment is ongoing.

Bar Dayan AB, Rabinovich Y, Chaikov A, **Brown OW** and Wolf YGG (2015). "Ultrasound-tagged light near-infrared technology for cerebral blood flow monitoring during carotid endarterectomy." Journal of Vascular Surgery 61(6): 23S.
[Full-Text](#)

Department of Surgery

Baschnagel AM, Galoforo S, Thibodeau BJ, Ahmed S, Nirmal S, **Akervall J** and **Wilson GD** (2015). "Crizotinib fails to enhance the effect of radiation in head and neck squamous cell carcinoma xenografts." Anticancer Research 35(11): 5973-5982.

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Department of Biomedical Sciences (BHS)

Department of Radiation Oncology

Aim: Mesenchymal-epithelial transition factor (MET), a receptor tyrosine kinase, is expressed in head and neck squamous cell carcinomas (HNSCC) and is involved in tumor progression and associated with poor prognosis. MET can be inhibited by crizotinib, a potent ATP-competitive kinase inhibitor. We examined the effects of combining crizotinib and radiation in a pre-clinical HNSCC model. **Materials and Methods:** Nine HNSCC cell lines were screened for MET expression, copy-number amplification and mutational status. The in vitro effects of crizotinib and radiation were assessed with clonogenic survival assays. MET signaling proteins were assessed with western blot and receptor tyrosine kinase array. Tumor growth-delay experiments with UT-SCC-14 and UTSCC-15 oral tongue xenografts were used to assess in vivo tumor radiosensitivity. **Results:** All nine HNSCC cell lines showed a varying degree of MET protein and RNA expression. Increased MET copy number was not present. MET was expressed after irradiation both in vitro and in vivo. Crizotinib alone inhibited phosphorylation of MET and inhibited cell growth in vitro but did not inhibit phosphorylation of downstream signaling proteins: MAPK, AKT or c-SRC. When combined with radiation in vitro, crizotinib demonstrated radiation enhancement in only one cell line. Crizotinib did not enhance the effect of radiation in either UT-SCC-14 or UTSCC-15 tumors grown as xenografts. **Conclusion:** MET is overexpressed in HNSCC cell lines, however, crizotinib failed to enhance the radiation response and failed to inhibit MET downstream signaling proteins in this HNSCC model.

Baschnagel AM, Wobb JL, **Dilworth JT**, Williams L, Eskandari M, **Wu DF**, Pruetz BL and **Wilson GD** (2015). "The association of F-18-FDG PET and glucose metabolism biomarkers GLUT1 and HK2 in p16 positive and negative head and neck squamous cell carcinomas." Radiotherapy and Oncology 117(1): 118-124.

[Full-Text](#)

Department of Radiation Oncology

Department of Diagnostic Radiology and Molecular Imaging

Objectives: To investigate the relationship between FDG-PET maximum standard uptake value (SUVmax), p16, EGFR, GLUT1 and HK2 expression in head and neck squamous cell carcinomas (HNSCC). **Materials and methods:** Immunohistochemical staining of p16, EGFR, GLUT1 and HK2 was performed on primary tumor tissue from 97 locally advanced HNSCC patients treated with definitive chemoradiation. SUVmax along with p16, EGFR, GLUT1 and HK2 expression were analyzed for associations including local control, locoregional control and disease free survival. **Results:** Pretreatment SUVmax in primary tumors did not differ when stratified by p16, EGFR or GLUT1 expression but SUVmax was significantly higher in HK2 expressing tumors ($p = 0.021$) and in tumors with higher T-stage ($p = 0.022$). GLUT1 expression was significantly higher in p16 negative ($p < 0.001$) and EGFR positive tumors ($p < 0.01$). HK2 expressing tumors were associated with EGFR positive tumors ($p = 0.022$) but not with p16 or GLUT1 expression. EGFR positive, p16 negative and high GLUT1 expressing tumors were associated with worse local control and disease free survival on univariate analyses. After adjusting for patient and treatment characteristics p16 status was the only factor that

predicted for outcome on multivariate analysis. Conclusions: High GLUT1 expression was associated with EGFR positive and p16 negative HNSCC tumors. GLUT1 maybe an important biomarker in HNSCC but its expression appears dependent on p16 status. (C) 2015 Elsevier Ireland Ltd. All rights reserved.

Bayci AWL, Mangla J, Jenkins CS, **Ivascu FA** and **Robbins JM** (2015). "Novel educational module for subclavian central venous catheter insertion using real-time ultrasound guidance." Journal of Surgical Education 72(6): 1217-1223.

[Full-Text](#)

Department of Surgery

OBJECTIVE: Given increasing evidence supporting a real-time ultrasound (US)-guided approach for subclavian vein (SCV) central venous catheter (CVC) insertion as compared with the traditional landmark approach, we sought to develop a standardized curriculum to offer healthcare providers a means to attain increased competency and confidence in US-guided SCV CVC insertion. DESIGN: Retrospective review of prospectively collected data. SETTING: Single institution's American College of Surgeons Level 1 Accredited Education Institute within an academic tertiary care center. SUBJECTS: A total of 77 residents and midlevel providers working in our surgical intensive care unit. INTERVENTIONS: Providers participated in a tiered educational module designed to teach safe US-guided SCV CVC insertion. The education consisted of a multimedia didactic presentation and a hands-on simulation session, including US anatomy on live subjects and anatomical model-based SCV CVC insertion. MEASUREMENTS AND MAIN RESULTS: Assessment of the effect of education included a written examination and confidence survey, administered pre- and postintervention, and videotaped simulation session graded by blinded expert evaluators. Of the 77 participants, 70 participants completed a posttest with a median 5-point increase in score compared with that of the pretest score ($p < 0.0001$). Confidence ratings based on a 5-point Likert scale demonstrated an increase in confidence in SCV CVC insertion ($p < 0.0001$), using the landmark approach ($p < 0.0001$), using US-guided approach ($p < 0.0001$), and in use of US to image the SCV ($p < 0.0001$). Postgraduate year-1 residents had lower mean global rating score ($p = 0.010$) than any other participants. CONCLUSIONS: This comprehensive hands-on teaching module-based curriculum enhanced learner knowledge of and confidence in US-guided SCV CVC insertion. This module can be implemented in simulation centers for teaching safe and successful SCV CVC insertion. ((C) 2015 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

Berman AD (2015). "Balloon aortic valvuloplasty," In Abbas AE (ed). Aortic Stenosis: Case-Based Diagnosis and Therapy. London: Springer. pp: 219-230.

[Full-Text](#)

Department of Internal Medicine

The role of surgical aortic valve replacement (SAVR) for aortic stenosis (AS) is well established as a lifesaving therapy, conferring improved survival, improved symptomatic status, decreases in left ventricular hypertrophy, and improvement in left ventricular systolic function. However, there remain a group of patients with clinical risk factors in whom the risk of SAVR is felt to be prohibitive due to comorbidities. Such risk factors include advanced age, advanced renal and pulmonary disease, and severe left ventricular dysfunction. Of particular concern were patients with "low gradient" AS in the presence of severe LV dysfunction and low cardiac output. The natural history of this group, treated medically, is dismal, with a 3 year survival of 25 %. Balloon dilatation of the aortic valve in non-calcified AS in young patients has been performed since 1984 with good short and long term results. Given these results, this technique was adapted for the treatment of high risk patients with AS in the 1980s by a number of groups. The procedure enjoyed some popularity in the mid 1980s in the treatment of a group of patient who otherwise were not candidates for SAVR. Enthusiasm waned, however, with subsequent reports of almost universal early recurrence of symptoms and hemodynamic deterioration, and aortic valvuloplasty was performed relatively infrequently over the subsequent 20 years. However, in the last several years, the success of transcatheter aortic valve replacement (TAVR) has again focused attention on patients who were felt to be at high risk for SAVR, and the role of BAV is being reassessed. The purpose of this chapter is to review the technique of balloon aortic valvuloplasty (BAV), and its place in the current era of valve interventions. © Springer-Verlag London 2015. All rights reserved.

Beunsalido J, **DeMarco C** and Lerner S (2015). "Mechanisms of action of antibacterial agents," In Goldman E and Green L (ed). Practical Handbook of Microbiology. Boca Raton: CRC Press. pp: 153-182.

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Department of Internal Medicine

Bilollikar AN, Goldstein JA, Madder RD and **Chinnaiyan KM** (2015). "Plaque disruption by coronary computed tomographic angiography in stable patients vs. acute coronary syndrome: A feasibility study." European Heart Journal Cardiovascular Imaging. ePub Ahead of Print.

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Department of Internal Medicine

AIMS: This study was designed to determine whether coronary CT angiography (CTA) can detect features of plaque disruption in clinically stable patients and to compare lesion prevalence and features between stable patients and those with acute coronary syndrome (ACS). **METHODS:** We retrospectively identified patients undergoing CTA, followed by invasive coronary angiography (ICA) within 60 days. Quantitative 3-vessel CTA lesion analysis was performed on all plaques $\geq 25\%$ stenosis to assess total plaque volume, low attenuation plaque (LAP, < 50 HU) volume, and remodelling index. Plaques were qualitatively assessed for CTA features of disruption, including ulceration and intra-plaque dye penetration (IDP). ICA was employed as a reference standard for disruption. A total of 145 (94 ACS and 51 stable) patients were identified. By CTA, plaque disruption was evident in 77.7% of ACS cases. Although more common among those with ACS, CTA also detected plaque disruption in 37.3% of clinically stable patients ($P < 0.0001$). **CONCLUSIONS:** Clinically stable patients commonly manifest plaques with features of disruption as determined by CTA. Though the prevalence of plaque disruption is less than patients with ACS, these findings support the concept that some clinically stable patients may harbour 'silent' disrupted plaques. These findings may have implications for detection of 'at risk' plaques and patients.

Bilollikar AN and Raff L (2015). "Complimentary role of ct/mri in the assessment of aortic stenosis," In Abbas AE (ed). Aortic Stenosis: Case-Based Diagnosis and Therapy. London: Springer. pp: 91-116.

[Full-Text](#)

Department of Internal Medicine

Cardiac magnetic resonance imaging (CMR) and cardiac computed tomography (CT) have specific advantages and disadvantages that supplement, but do not supplant echocardiography as the major imaging modality used for management of patients with aortic stenosis (AS). In general, CMR provides more complete physiologic information than CT, but CT angiography has broader general applicability, as it is now frequently used for coronary angiography and is a main tool in pre-procedural planning and valve sizing for transcatheter aortic valve replacement (TAVR). One major impediment to more pervasive use of these tests is the lack available equipment and expertise in many centers. In addition, there are application-specific intrinsic limitations, which we will delineate, that allow echocardiography to remain the mainstay of diagnosis of severe AS. However, specific advantages may make these techniques uniquely advantageous in select patients with inconclusive diagnosis. In this chapter we will review the incremental role of cardiac MRI and CTA in patients with aortic stenosis. © Springer-Verlag London 2015. All rights reserved.

Blas KG, Brown ME, Wallace M, Tonlaar NY, Stone BM, **Chen PY, Gustafson GS, Brabbins DS**, Yan D, Ye H and **Krauss DJ** (2015). "A matched comparison of high-risk prostate cancer patients treated with dose-escalated, image guided adaptive External Beam Radiation Therapy (EBRT) versus pelvic EBRT plus high-dose-rate brachytherapy boost." International Journal of Radiation Oncology Biology Physics 93(3): S121-S122.

[Full-Text](#)

Department of Radiation Oncology

Purpose/Objective(s): To compare outcomes and toxicity between high-risk prostate cancer patients treated with dose-escalated, image guided, adaptive radiation therapy (IGART) versus high-dose-rate brachytherapy boost (HDR-B). **Materials/Methods:** From February 1992 to October 2013, 571 patients underwent definitive radiation therapy for high-risk prostate cancer using IGART or HDR-B. A matched-pair analysis was

completed based on the following criteria: prostate-specific antigen (PSA) group (<4, 4-10, 10-20, ≥20), Gleason score (≤7, 8, 9-10), Clinical T-stage (≤T2a, ≥T2b), age ±3 years, and administration of androgen suppression (yes, no). Patients were excluded if their pretreatment PSA was >50 ng/mL or had <6 months of follow-up. Patient characteristics were compared using 2-tailed t tests. Toxicity was compared using the Pearson χ^2 test. Outcomes were calculated using the Kaplan Meier log-rank test. Those in the IGART cohort were treated in 1.8-Gy fractions to the prostate and seminal vesicles while the HDR-B group received varying boost doses together with 46 Gy in 2-Gy fractions to the whole pelvis. Assuming an a/b ratio of 3, the calculated BED for median dose received was 172 Gy (HDR-B) versus 124 Gy (IGART). Results: Five hundred seventy-one patients met criteria for inclusion: IGART (n = 316) and HDR-B (n = 225). One hundred thirty-four patient pairs (n = 268) were well matched and formed the final analysis. The groups differed only in their median follow-up time of 8.0 years versus 5.8 years for HDR-B and IGART, respectively. Biochemical control was higher in patients treated with HDR-B compared to IGART at 5 years, 78.8% versus 66.4% (P = .052), and 10 years, 64.9% versus 57.7% (P = .038). There were no significant differences detected in terms of survival, locoregional recurrence, or distant metastasis. Patients experienced more acute grade ≥2 dysuria (18% vs. 5%, P = .002) as well as grade ≥2 (18% vs. 7%, P = .011) diarrhea in the HDR-B group. Patients treated with HDR-B had increased rates of chronic grade ≥2 frequency/urgency (29% vs. 13%, P = .004), retention (17% vs. 2%, P < .001), and urethral stricture (15% vs. 0%, P < .001). Long term rectal toxicity was similar between the two groups. Conclusion: Both HDR-B and dose-escalated IGART result in excellent clinical outcomes for patients treated for high-risk prostate cancer. While refinements in treatment techniques can continue to improve treatment-related toxicity, biochemical control improvement in patients treated with HDR boost suggests that this approach remains an excellent option in patients well suited for such treatment. It remains unclear whether or not this biochemical control advantage would translate into improvements in clinical outcomes for a larger patient cohort.

Bojrab D, Chen P, Maitz A and Slattery E (2015). "Stereotactic radiosurgery for vestibular schwannomas," In Larouere MJ, Babu SC and Bojrab DI (ed). Surgical Techniques in Otolaryngology-Head and Neck Surgery: Otologic and Neurotologic Surgery. Daryaganj: Jaypee Brothers Medical Pub. pp: 209-219.

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Department of Surgery

Department of Radiation Oncology

Bojrab D and Slattery E (2015). "Tympanoplasty and ossiculoplasty," In Larouere MJ, Babu SC and Bojrab DI (ed). Surgical Techniques in Otolaryngology-Head and Neck Surgery: Otologic and Neurotologic Surgery. Daryaganj: Jaypee Brothers Medical Pub. pp: 43-61.

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Department of Surgery

Bostic G, Thompson R, Atanasoski S, Canlas C, Ye H, **Kolins M** and **Smith MD** (2015). "Quality improvement in the coagulation laboratory: Reducing the number of insufficient blood draw specimens for coagulation testing." Laboratory Medicine 46(4): 347-355.

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Department of Pathology

Objectives: To report the efforts of our laboratory to reduce quantity-not-sufficient (QNS) specimens via several methods and to directly measure the effect of expired collection tubes on the amount of blood that can be drawn. Methods: We tracked the number of QNS venous-blood specimens per month received by our coagulation laboratory from March 2008 to December 2012. Interventions involved communications that informed nurses and phlebotomists how to avoid drawing QNS specimens and floor sweeps, in which laboratory staff searched for and removed expired vacuum-based blood-collection tubes (VBCTs) from inpatient hospital floors. Also, we assessed 11 healthy donors to determine the amount of blood that could be drawn into expired VBCTs. Results: During the study period, the rate of QNS specimens dropped from a mean of 0.7% to 0.3%. In expired VBCTs collected from healthy donors, we observed a statistically significant difference in the amount of blood drawn into nonexpired vs expired VBCTs (P < .001). Also, there was a

negative relationship between the number of months that the VBCT had been expired and the amount of blood that could be drawn into the VBCTs ($P < .001$). For every month that VBCTs were expired, the amount of blood drawn decreased by approximately 1.8 mm (0.1 mL), using linear regression analysis. Conclusion: Our evidence strongly suggests that expired VBCTs consistently and progressively yield QNS specimens. Methods to reduce blood draws from expired VBCTs may include communications promoting proper blood draw technique, floor sweeps to remove expired VBCTs, and improved inventory management.

Boyden TF, Joynt KE, McCoy L, Neely ML, Cavender MA, **Dixon S**, Masoudi FA, Peterson E, Rao SV and Gurm HS (2015). "Collaborative quality improvement vs public reporting for percutaneous coronary intervention: A comparison of percutaneous coronary intervention in New York vs Michigan." [American Heart Journal](#) 170(6): 1227-1233.

[Full-Text](#)

Department of Internal Medicine

Introduction Public reporting (PR) is a policy mechanism that may improve clinical outcomes for percutaneous coronary intervention (PCI). However, prior studies have shown that PR may have an adverse impact on patient selection. It is unclear whether alternatives to PR, such as collaborative quality improvement (CQI), may drive improvements in quality of care and outcomes for patients receiving PCI without the unintended consequences seen with PR. Methods Using National Cardiovascular Data Registry CathPCI Registry data from January 2011 through September 2012, we evaluated patients who underwent PCI in New York (NY), a state with PR ($N = 51,983$), to Michigan, a state with CQI ($N = 53,528$). We compared patient characteristics, the quality of care delivered, and clinical outcomes. Results Patients undergoing PCI in NY had a lower-risk profile, with a lower proportion of patients with ST-segment elevation myocardial infarction, non-ST-segment elevation myocardial infarction, or cardiogenic shock, compared with Michigan. Quality of care was broadly similar in the 2 states; however, outcomes were better in NY. In a propensity-matched analysis, patients in NY were less likely to be referred for emergent, urgent, or salvage coronary artery bypass surgery (odds ratio [OR] 0.67, 95% CI 0.51-0.88, $P < .0001$) and to receive blood transfusion (OR 0.7, 95% CI 0.61-0.82, $P < .0001$), and had lower in-hospital mortality (OR 0.72, 95% CI 0.63-0.83, $P < .0001$). Conclusions Public reporting of PCI data is associated with fewer high-risk patients undergoing PCI compared with CQI. However, in comparable samples of patients, PR is also associated with a lower risk of mortality and adverse events. The optimal quality improvement method may involve combining these 2 strategies to protect access to care while still driving improvements in patient outcomes.

Calvo C, Rayess N, Rahimy E, Shah C, **Wolfe JD**, Chen E, DeCroos F, Garg SJ and Hsu J (2015). "Microbiologic spectrum of post-injection endophthalmitis by indication for intravitreal anti-VEGF therapy." [Investigative Ophthalmology and Visual Science](#) 56(7): Ab 4070.

[Request Form](#)

Department of Ophthalmology

Carpenter CF and **Gilpin N** (2015). "Candidiasis," In Schlossberg D (ed). [Clinical Infectious Disease](#). Cambridge: Cambridge University Press. pp: 1104-1112.

[Request Form](#)

Department of Internal Medicine

Candida species are small unicellular yeasts that are found in a number of environments, including soil, hospital surroundings, food, and other inanimate objects. Most species are commensal organisms, colonizing the skin, gastrointestinal tract, and vagina. They become opportunistic pathogens when the host has compromised immunologic or mechanical defenses or when there are changes in the host's normal flora, such as those triggered by broad-spectrum antibiotic use and chemotherapy. Candida species are common causes of disease ranging from superficial cutaneous and mucocutaneous infections to invasive infections such as candidemia and disseminated candidiasis. There are more than 150 species of Candida, with Candida albicans (Figure 172.1) being the most frequently implicated in human disease processes. Over the past two decades, however, there has been a noticeable increase in disease due to non-albicans species. Important non-albicans pathogens include Candida tropicalis (Figure 172.2), Candida parapsilosis, Candida glabrata (Figure 172.3), Candida krusei (Figure 172.4), Candida kefyr, Candida lusitanae, Candida

dublinsiensis, and Candida guilliermondii. Less commonly isolated species with medical significance include Candida lipolytica, Candida famata, Candida rugosa, Candida viswanathii, Candida haemulonii, Candida norvegensis, Candida catenulate, Candida ciferri, Candida intermedia, Candida utilis, Candida lambica, Candida pulcherrima, and Candida zeylanoides. © Cambridge University Press (2008) 2015.

Chan E (2015). "Mastoidectomy," In Larouere MJ, Babu SC and Bojrab DI (ed). Surgical Techniques in Otolaryngology-Head and Neck Surgery: Otologic and Neurotologic Surgery. Daryaganj: Jaypee Brothers Medical Pub. pp: 63-74.

[Request Form](#)

Department of Surgery

Chan E (2015). "Surgery of the ear canal," In Larouere MJ, Babu SC and Bojrab DI (ed). Surgical Techniques in Otolaryngology-Head and Neck Surgery: Otologic and Neurotologic Surgery. Daryaganj: Jaypee Brothers Medical Pub. pp: 11-25.

[Request Form](#)

Department of Surgery

Chen PY, Wobb JL, Wallace M, Jawad MS, Ye H, Pietron A, **Dekhne N** and **Brabbins DS** (2015). "Fifteen year outcomes of favorable histologies of early-stage breast cancer treated with Accelerated Partial-Breast Irradiation (APBI)." International Journal of Radiation Oncology Biology Physics 93(3): E28-E29.

[Full-Text](#)

Department of Radiation Oncology

Department of Surgery

Purpose/Objective(s): Early-stage breast cancer patients treated with APBI have shown results comparable to whole breast irradiation (WBI). The majority receiving APBI have low-risk clinicopathological features, usually consisting of invasive ductal carcinoma, not otherwise specified. This study analyzes the long-term outcomes of Favorable Histological (FH) breast subtypes treated with APBI. Materials/Methods: Between 4/1986 & 1/2013, at a single institute, breast conservation therapy was undertaken in 758 pts treated with APBI, while 3789 pts were treated with WBI. From this database, query was made for favorable histologies, specifically tubular, tubulolobular, mucinous, and medullary subtypes. This yielded 47 such FH cases treated with APBI, and 202 treated with WBI. To compare outcomes, a match-pair analysis was done using a 1:1 ratio with match criteria of follow-up (FU) +/- 5 yrs, age +/- 3 yrs and ER, the latter to emphasize the favorable biology of these low-risk histologies. This resulted in 88 patients, 44 APBI matched to 44 WBI. Actuarial outcomes were assessed including freedom from local recurrence (FFLR), regional recurrence (FFRR), distant metastasis (FFDM), contralateral breast failure (CLBF), disease-free, cause specific, and overall survival (DFS, CSS, OS) using the Kaplan-Meier method. Pt and disease traits were computed using Pearson's χ^2 test. Results: Matched for age & ER, the various FHs ($p=0.09$), PR ($p=0.211$), Her2 ($p=0.322$), triple-negative ($p=0.439$) and use of chemotherapy ($p=0.472$) were not significantly different in the matched population. However, APBI to WBI for T-stage (T1 98% vs 82% $p=0.02$), N0 nodal (96% vs 44% $p<0.001$) and use of endocrine therapy (55% vs 29%, $p=0.014$) were statistically significant, suggesting selection of WBI in pts with larger index lesions & N+ status. Mean age was 63.7 yrs. With a median FU of 9.0 yrs (1.5-19.5) there was no statistical difference between APBI&WBI in terms of 10- and 15-yr actuarial FFLR, FFRR, FFDM, CLBF, DFS, and CSS. (See Table). The only significance was in OS at 10 and 15 yrs with APBI being superior over WBI at 10 (85% vs 66.3%)&15 yrs (75.5%vs 37.1%), $p=0.03$. Conclusion: As the natural history of low-grade breast cancers is long & protracted, these 15-yr outcome results of favorable histology breast cancer subtypes demonstrate that APBI is at least as efficacious as WBI in the setting of breast conservation therapy. More patients and further FU beyond 15 years will be needed to substantiate these findings. (Table Presented).

Chennamsetty A, **Hafron J**, Edwards L, **Pew S**, **Poushanchi B**, **Hollander J**, Killinger KA, Coffey MP and **Peters KM** (2015). "Predictors of incisional hernia after robotic assisted radical prostatectomy." Advances in Urology 2015: 457305.

[Request Form](#)

Department of Urology

OUWB Medical Student Author

Introduction. To explore the long term incidence and predictors of incisional hernia in patients that had RARP. Methods. All patients who underwent RARP between 2003 and 2012 were mailed a survey reviewing hernia type, location, and repair. Results. Of 577 patients, 48 (8.3%) had a hernia at an incisional site (35 men had umbilical), diagnosed at (median) 1.2 years after RARP (mean follow-up of 5.05 years). No statistically significant differences were found in preoperative diabetes, smoking, pathological stage, age, intraoperative/postoperative complications, operative time, blood loss, BMI, and drain type between patients with and without incisional hernias. Incisional hernia patients had larger median prostate weight (45 versus 38 grams; $P = 0.001$) and a higher proportion had prior laparoscopic cholecystectomy (12.5% (6/48) versus 4.6% (22/480); $P = 0.033$). Overall, 4% (23/577) of patients underwent surgical repair of 24 incisional hernias, 22 umbilical and 2 other port site hernias. Conclusion. Incisional hernia is a known complication of RARP and may be associated with a larger prostate weight and history of prior laparoscopic cholecystectomy. There is concern about the underreporting of incisional hernia after RARP, as it is a complication often requiring surgical revision and is of significance for patient counseling before surgery.

Cheung A, Robinson J, **Trese MT** and **Williams GA** (2015). "Long-term glaucoma outcomes in adult retinopathy of prematurity." Investigative Ophthalmology and Visual Science 56(7): Ab 4319.

[Request Form](#)

Department of Ophthalmology

Chiang MF, Patel M, Anzures R, Ostmo S, Jonas K, **Drenser KA**, Berrocal AM, Simmons C and Chan RVP (2015). "Practice patterns in Retinopathy Of Prematurity (ROP) treatment for disease milder than recommended by published guidelines." Investigative Ophthalmology and Visual Science 56(7): Ab 4320.

[Request Form](#)

Department of Ophthalmology

Chinnaiyan KM, DePetris AM, **Boura JA**, Stakich-Alpirez K and Billecke SS (2015). "Feasibility of establishing a comprehensive yoga program and its dose-effect relationship on cardiovascular risk factors and wellness parameters: A pilot study." International Journal of Yoga Therapy 25(1): 135-140.

[Full-Text](#)

Department of Internal Medicine

Department of Biomedical Sciences (BHS)

BACKGROUND: We sought to study the feasibility of establishing a comprehensive, mostly self-directed yoga program in a hospital and its dose-effect relationship on cardiovascular risk factors and quality of life (QoL) measures over six months. METHODS: Yoga-based techniques (Advanced Yoga Practices; AYP; advancedyogapractices.com) were taught in 12 biweekly group sessions and self-directed practice at home was emphasized. Cardiovascular risk factors were elucidated by interview and review of medical history. Quality of life (QoL) outcomes included the SF-36, the Cohen Perceived Stress Scale (CPSS), and the Hospital Anxiety and Depression Scale (HADS). Risk factors and QoL measures were compared in participants at baseline and six months, as well as between those practicing ≥ 7 times versus < 7 times per week. RESULTS: A total of 22 individuals (19 women, mean age 59 +/- 8.7 years) completed the study. At six months, changes were noted in the Mental Component Scale (MCS) of the SF-36 ($p=0.0004$) and the CPSS ($p = 0.022$). A greater improvement in CPSS was noted in those practicing ≥ 7 times versus < 7 times a week ($p=0.045$). No changes were noted in cardiovascular risk factors. CONCLUSIONS: The prescription of a self-directed yoga program was feasible in a hospital setting and resulted in improvement in QoL measures at six months. Practicing more than seven times per week correlated with greater improvement in the perception of stress. Thus, at least a once-daily dose of AYP techniques for a significant improvement in

perceived stress is an appropriate dose to employ and study in hospital settings.

Chun DS, **Baker KC** and Hsu WK (2015). "Lumbar pseudarthrosis: A review of current diagnosis and treatment." Neurosurgical Focus 39(4): Num E10.

[Request Form](#)

Department of Orthopedic Surgery

Object Failed solid bony fusion, or pseudarthrosis, is a well-known complication of lumbar arthrodesis. Recent advances in radiographic technology, biologics, instrumentation, surgical technique, and understanding of the local biology have all aided in the prevention and treatment of pseudarthrosis. Here, the current literature on the diagnosis and management of lumbar pseudarthroses is reviewed. Methods A systematic literature review was conducted using the MEDLINE and Embase databases in order to search for the current radiographic diagnosis and surgical treatment methods published in the literature (1985 to present). Inclusion criteria included: 1) published in English; 2) level of evidence I-III; 3) diagnosis of degenerative lumbar spine conditions and/or history of lumbar spine fusion surgery; and 4) comparative studies of 2 different surgical techniques or comparative studies of imaging modality versus surgical exploration. Results Seven studies met the inclusion criteria for current radiographic imaging used to diagnose lumbar pseudarthrosis. Plain radiographs and thin-cut CT scans were the most common method for radiographic diagnosis. PET has been shown to be a valid imaging modality for monitoring in vivo active bone formation. Eight studies compared the surgical techniques for managing and preventing failed lumbar fusion. The success rates for the treatment of pseudarthrosis are enhanced with the use of rigid instrumentation. Conclusions Spinal fusion rates have improved secondary to advances in biologics, instrumentation, surgical techniques, and understanding of local biology. Treatment of lumbar pseudarthrosis includes a variety of surgical options such as replacing loose instrumentation, use of more potent biologics, and interbody fusion techniques. Prevention and recognition are important tenets in the algorithm for the management of spinal pseudarthrosis. © AANS, 2015.

Cipriani NA, **Nagar S**, Kaplan SP, White MG, Antic T, Sadow PM, Aschebrook-Kilfoy B, Angelos P, Kaplan EL and Grogan RH (2015). "Follicular thyroid carcinoma: How have histologic diagnoses changed in the last half-century and what are the prognostic implications?" Thyroid 25(11): 1209-1216.

[Request Form](#)

Department of Surgery

Background: Follicular thyroid carcinoma (FTC) comprises 10% of differentiated thyroid cancers. Diagnostic controversy and interobserver variability render the practical diagnosis of FTC difficult. Overall survival rates vary (46-97%). The aims of this study were to review FTC histologically at the authors' tertiary care institution and to evaluate long-term survival and recurrence. Methods: Diagnostic slides from 66 FTC cases (1965-2007) were reviewed by three pathologists from two institutions (blinded to clinical outcomes), and consensus was obtained. Patient demographics, tumor characteristics, and treatment, survival, and recurrence data were collected. Thyroid cancer-specific and recurrence-free survival were calculated by original and reclassified diagnoses. Results: Forty-seven cases (71%) were reclassified: 24 (36%) to papillary thyroid carcinoma (PTC), 18 (27%) to follicular adenoma (FA), and five (8%) to poorly differentiated carcinoma (PDC). Nineteen (29%) maintained a diagnosis of FTC. The extent of surgical resection and rates of radioiodine treatment did not differ by reclassification diagnosis. Pre-review FTC-specific survival was 83.5% and 75.1% at 10 and 20 years, respectively. Following contemporary reclassification, FTC-specific survival was 77% and 33.7% at 10 and 20 years, respectively. There were no cancer-specific deaths in the FA or PTC groups. Conclusions: Over the past 50 years, changes in our understanding of the pathogenesis, histology, and behavior of thyroid carcinoma may partially account for the changes in histologic diagnosis. Elimination of PTC and FA "contaminants" led to decrease in survival following reclassification. Variability in histologic interpretation contributes to diagnostic challenges in follicular lesions. Histologic review of thyroid tumors for research studies is crucial, especially given the ever-changing diagnostic criteria. © Copyright 2015, Mary Ann Liebert, Inc..

Cohen MG, Matthews R, Maini B, **Dixon S**, Vetrovec G, Wohns D, Palacios I, Popma J, Ohman EM, Schreiber T and O'Neill WW (2015). "Percutaneous left ventricular assist device for high-risk percutaneous coronary interventions: Real-world versus clinical trial experience." [American Heart Journal](#) 170(5): 872-879.

[Full-Text](#)

Department of Internal Medicine

Background High-risk percutaneous coronary intervention (PCI) supported by percutaneous left ventricular assist devices offers a treatment option for patients with severe symptoms, complex and extensive coronary artery disease, and multiple comorbidities. The extrapolation from clinical trial to real-world practice has inherent uncertainties. We compared the characteristics, procedures, and outcomes of high-risk PCI supported by a microaxial pump (Impella 2.5) in a multicenter registry versus the randomized PROTECT II trial (NCT00562016). Methods The USpella registry is an observational multicenter voluntary registry of Impella technology. A total of 637 patients treated between June 2007 and September 2013 were included. Of them, 339 patients would have met enrollment criteria for the PROTECT II trial. These were compared with 216 patients treated in the Impella arm of PROTECT II. Results Compared to the clinical trial, registry patients were older (70 +/- 11.5 vs 67.5 +/- 11.0 years); more likely to have chronic kidney disease (30% vs 22.7%), prior myocardial infarction (69.3% vs 56.5%), or prior bypass surgery (39.4% vs. 30.2%); and had similar prevalence of diabetes, peripheral vascular disease, and prior stroke. Registry patients had more extensive coronary artery disease (2.2 vs 1.8 diseased vessels) and had a similar Society of Thoracic Surgeons predicted risk of mortality. At hospital discharge, registry patients experienced a similar reduction in New York Heart Association class III to IV symptoms compared to trial patients. Registry patients had a trend toward lower in-hospital mortality (2.7% vs 4.6, P =.27). Conclusions USpella provides a real-world and contemporary estimation of the type of procedures and outcomes of high-risk patients undergoing PCI supported by Impella 2.5. Despite the higher risk of registry patients, clinical outcomes appeared to be favorable and consistent compared with the randomized trial.

Cohen MG, Matthews RV, Maini B, **Dixon S**, Vetrovec GW, Wohns DH, Palacios IF, Popma J, Ohman EM, Schreiber T and O'Neill WW (2015). "Use of a percutaneous left ventricular assist device for high risk percutaneous coronary interventions. Clinical trial versus real world experience." [Journal of the American College of Cardiology](#) 66(15): B8-B9.

[Full-Text](#)

Department of Internal Medicine

BACKGROUND High-risk percutaneous coronary intervention (PCI) supported by percutaneous left ventricular assist devices offers a treatment option for patients with severe symptoms, complex and extensive coronary artery disease (CAD), and multiple comorbidities. The extrapolation from clinical trial to real-world practice has inherent uncertainties. We compared the characteristics, procedures, and outcomes of high-risk PCI supported by a microaxial pump (Impella 2.5) in a multicenter registry versus the randomized PROTECT II trial (NCT00562016). METHODS The USpella registry is an observational multicenter voluntary registry of Impella technology in 47 sites in the United States and 2 sites in Canada. A total of 637 patients undergoing high-risk PCI supported by Impella 2.5 between 6/2007 and 9/2013 were included in this analysis. Of them, 339 patients would have met enrollment criteria for the PROTECT II trial. Baseline variables, procedural characteristics, and in-hospital outcomes of these registry patients were compared with 216 patients treated in the Impella arm of the PROTECT II trial. All events were centrally adjudicated by an independent clinical events committee. RESULTS Compared to the clinical trial, registry patients were older (70±11.5 vs. 67.5±11.0 years), more likely to have chronic kidney disease (30% vs. 22.7%), prior myocardial infarction (69.3% vs. 56.5%), prior by-pass surgery (39.4% vs. 30.2%), and had similar prevalence of diabetes, peripheral vascular disease, and prior stroke. Registry patients had more extensive CAD (2.2 vs. 1.8 diseased vessels), and had a similar STS predicted risk of mortality (6.0±6.0 vs. 5.8±6.0, p=0.64). Left ventricular ejection fraction was 23.4±6.3% and 21.6±7.7%, in the registry and clinical trial, respectively (p=0.004). Use of rotational atherectomy was similar (16.4% vs. 14.8%, p=0.63), but the number of passes per lesion was significantly lower in the registry (2.56±2.20 vs. 3.47±1.89, p=0.003). At hospital discharge, registry patients experienced a 42% reduction in NYHA class III-IV symptoms. In-hospital mortality was numerically lower among registry patients (2.7% vs. 4.6, p=0.27). Need for blood transfusions were similar in registry and clinical trial patients (9.1% vs. 12.5%, p=0.21). There were no differences in the occurrence of other

complications such as acute kidney failure, vascular injury or ventricular arrhythmias. CONCLUSIONS USpella provides a real world and contemporary estimation of the type of procedures and outcomes of high-risk patients undergoing PCI supported by Impella 2.5. Despite the higher risk of registry patients, clinical outcomes appeared to be favorable and consistent compared with the randomized trial.

Copelan A, Scola D, **Roy A** and **Nghiem HV** (2015). "The myriad advantages of ultrasonography in image-guided interventions." Ultrasound Quarterly. ePub Ahead of Print.

[Request Form](#)

Department of Diagnostic Radiology and Molecular Imaging

ABSTRACT: We will review and illustrate the multiple advantages of ultrasound as an image guidance tool, including real-time vessel visualization, multiplanar capability, portability/availability, and decreased procedure time and cost. We will demonstrate the unique advantages of the use of this imaging modality in the biopsy of small parenchymal lesions particularly those that are not visible with unenhanced computed tomography (CT) or not persistently visible with contrast-enhanced CT or those lesions not readily accessible by CT guidance, the use of direct probe compression to displace bowel away from biopsy targets, the use of direct probe compression to staunch intraprocedural bleeding observed with real-time visualization to minimize postprocedural bleeding complications, and the ability to biopsy masses in pediatric patients as a function of the inherent lack of ionizing radiation. Finally, we will review and illustrate how the use of preprocedural lesion characterization with ultrasound at times can serve as a problem-solving tool providing an alternative and reasonably confident diagnosis and thus avoiding unnecessary procedures and associated potential risks. Copyright © 2015 Wolters Kluwer Health, Inc. All rights reserved

Dallo FJ, Ruterbusch JJ, Kirma JD, Schwartz K and **Fakhouri M** (2015). "A health profile of Arab Americans in Michigan: A novel approach to using a hospital administrative database." Journal of Immigrant and Minority Health. ePub Ahead of Print.

[Full-Text](#)

Department of Family Medicine

The objectives of this study were to estimate and compare the prevalence of heart disease, cancer, chronic lower respiratory disease, stroke, Alzheimer's, diabetes, nephrosis, flu/pneumonia, hypertension, and atherosclerosis between Arab Americans and whites attending a large, metropolitan hospital system. The sample included 68,047 patients, 18 years of age or older, who visited the hospital during 2012. Demographic and disease variables were electronically abstracted. Demographic characteristics were compared between Arab Americans and whites using Chi square tests. Sex specific, age-adjusted prevalence ratios (PR) and 95 % confidence intervals were estimated for these two groups using a log-binomial regression model. Compared to white men, Arab American men had a higher prevalence of diabetes (PR 1.40, 95 % CI 1.29–1.52) and hypertension (PR 1.07, 95 % CI 1.04–1.10), and a lower prevalence of chronic lower respiratory disease (PR 0.74, 95 % CI 0.66–0.83). Compared to white women, Arab American women had a higher prevalence of chronic lower respiratory disease (PR 1.12, 95 % CI 1.01–1.25), diabetes (PR 1.49, 95 % CI 1.38–1.60), influenza/pneumonia (PR 1.26, 95 % CI 1.05–1.51) and hypertension (PR 1.04, 95 % CI 1.01–1.08). This study supports previous findings that health disparities exist for Arab Americans, who are classified as "white" in health statistics. Standard inclusion of Arab American as a separate ethnicity category will aid researchers in assessing the health care needs of this growing minority community. © 2015 Springer Science+Business Media New York

D'Andrea K, Dreyer J and **Fahim DK** (2015). "Utility of preoperative magnetic resonance imaging coregistered with intraoperative computed tomographic scan for the resection of complex tumors of the spine." World Neurosurgery 84(6): 1804-1815.

[Full-Text](#)

Department of Neurosurgery

Background Complete surgical resection is known to provide the best prognosis when treating complex tumors of the spine. The anatomy of the cervical spine and the extensive involvement often present by the time these lesions are discovered can make total resection challenging. A novel technique combining

preoperative and intraoperative imaging for intraoperative navigation can serve as an additional tool for facilitating tumor resection. Methods Preoperative MRI was coregistered with intraoperative CT for accurate, real-time, intraoperative navigation for complete resection of complex tumors of the cervical spine. This new technique is demonstrated. The potential advantages and challenges are discussed. Results Preoperative MRI coregistered and merged with intraoperative CT allows for accurate visualization of tumor boundaries, osseous anatomy, and surrounding soft tissue structures. Total resection of extensive spinal tumors involving the anterior and posterior elements can be facilitated with this technique. Conclusions Preoperative MRI coregistered and merged with intraoperative CT may serve as a useful intraoperative imaging modality for facilitating safe and complete resection of complex spine tumors. © 2015 Elsevier Inc.

Dereski M (2015). "Collaborative community health research (Peer Reviewed)." MedEdPortal Publication No. 10278
[Full-Text](#)

Department of Biomedical Sciences (OU)

Many medical students and faculty researchers have had little or no experience working with community groups on health-related research. These resources are meant to provide guidelines and background information on how to make this experience rewarding for all parties involved. Awareness and utilization of these guidelines may result in more robust and meaningful outcomes from a collaborative community health research (CCHR) project. The presentation and accompanying materials describe best-practice guidelines that can facilitate the research process for the benefit of all partners involved in the process. These guidelines are based on the work of several well-respected leaders in this field, notably Dr. Barbara Israel, who coined the phrase "Community-Based Participatory Research-CBPR" in 1998. However, the guidelines presented here incorporate other notable manuscripts and lessons learned by the author throughout her 30+ years working in research, the majority in Detroit, Michigan.

Dilworth JT, Marples B, Gondert JM, Grills IS, Marvin K, Zhou J, Krauss DJ, Wilson GD, Chinnaiyan P and Chen PY (2015). "Pulsed partial-brain irradiation for newly diagnosed glioblastoma: Feasibility and preliminary results of a prospective clinical trial." *International Journal of Radiation Oncology Biology Physics* 93(3): E88-E89.

[Full-Text](#)

Department of Radiation Oncology

Purpose/Objective(s): Our institution has evaluated pulsed radiation therapy (PRT) as a novel and effective treatment for glioblastoma in preclinical models. Here we describe our PRT delivery technique and report the preliminary clinical outcomes of a prospective, single-arm clinical trial investigating PRT in the treatment of newly diagnosed glioblastoma. Materials/Methods: Eight patients received 60 Gy PRT utilizing volumetric modulated arc radiation therapy (VMAT) with concurrent 75 mg/m² temozolomide (TMZ), followed by maintenance 150-200 mg/m² TMZ. An open-face, thermoplastic mask was used for immobilization during PRT. Each daily 2-Gy fraction comprised ten 0.2-Gy pulses; each pulse was delivered with the same arc separated by 3-minute intervals. The initial planning target volume (PTV) (FLAIR+2 cm) received 46 Gy; the boost PTV (T1+2.5 cm) received 14 Gy. Due to prolonged treatment time, we performed cone beam CT acquired prior to the first and sixth pulse. Brain MRI and neurocognitive, quality of life, and toxicity assessments were performed at baseline and at regular intervals. Toxicities were graded per CTCAEv4. Results: Mean age was 61 yrs (50-70 yrs). A total of 4/2/2 patients underwent subtotal resection/near total resection/gross total resection, and 2 patients had a hypermethylated MGMT promoter. The mean ± SEM table adjustment in the x/y/z direction to correct for daily set-up error and intra-treatment movement was 1.2±0.05mm/2±0.1mm/1.4±0.06mm, and 0.4±0.02mm/0.7 ± 0.03mm/0.6± 0.03mm, respectively. At least 95% of the initial and boost PTV was covered with ≥95% of the prescription dose with each pulse, with a mean maximum dose of 0.22 ± 0.009 Gy. Mean arc length was 149 degrees (119-171 degrees) and took a mean 51 sec (47-62 sec) to deliver 0.2Gy. With a mean follow-up of 11 mos (7-19 mos), all 7 patients who completed the minimum treatment including ≥6 mos maintenance TMZ are alive, with a mean progression-free survival of 7.9 mos. One patient, who received tumor "debulking," refused maintenance temozolomide, was lost to follow-up, and expired 10 mos after diagnosis. Maximal toxicities included grade 1/2 alopecia (88%/13%), grade 1 scalp dermatitis (25%), grade 1 headache (34%), and grade 1/2

fatigue (25%/25%). Mean mini-mental status examination score at baseline and 6 mos following PRT was 27.4/30 and 29/30. Conclusion: This is the first reported use of PRT in the treatment of newly diagnosed glioblastoma. PRT is reproducible and well tolerated. VMAT allows appropriate PTV coverage with acceptable heterogeneity and pulse treatment duration. Preliminary progression-free survival rates are promising, and additional follow-up is needed to assess long-term clinical outcomes.

Duncan AA, Smeds MR, Harlander-Locke MP, Lawrence PF, Lyden SP, Fatima J, Charlton-Ouw KM, Morasch M, Motaganahalli RL, Nelson P, Shalhub S, **Bove PG**, Modrall JG, Davila VJ, Hedayati N, Abou-Zamzam A, Abularrage CJ and Wittgen CM (2015). "Treatment and outcomes of aortic endograft infection." Journal of Vascular Surgery 61(6): 40S-41S.

[Full-Text](#)

Department of Surgery

Eskandari M and **Zhang P** (2015). "Increased angiotensin 2 expression in sarcoid granulomas." American Journal of Clinical Pathology 144: A385.

[Request Form](#)

Department of Pathology

Fahs F, Bi X, Yu FS, Zhou L and Mi QS (2015). "New insights into microRNAs in skin wound healing." IUBMB Life 67(12): 889-896.

[Full-Text](#)

OUWB Medical Student Author

Chronic wounds are a major burden to overall healthcare cost and patient morbidity. Chronic wounds affect a large portion of the US, and billions of healthcare dollars are spent in their treatment and management. microRNAs (miRNAs) are small, noncoding double-stranded RNAs that post-transcriptionally downregulate the expression of protein-coding genes. Studies have identified miRNAs involved in all three phases of wound healing including inflammation, proliferation, and remodeling. Some miRNAs have been demonstrated in vitro with primary keratinocyte wound healing model and in vivo with mouse wound healing model through regulation of miRNA expression to affect the wound healing process. This review updates the current miRNAs involved in wound healing and discusses the future therapeutic implications and research directions. © 2015 International Union of Biochemistry and Molecular Biology.

Folberg R (2016). "Naming the precursors of conjunctival melanoma." American Journal of Ophthalmology 162(Feb): 1-2.

[Full-Text](#)

Administration

Fortin PT (2015). "The Salto and Salto talaris prostheses: Design and implementation pitfalls resulting in revision surgery," In Haddad SL (ed). Total Ankle Arthroplasty. Rosemont: American Academy of Orthopaedic Surgeons. pp: 103-116.

[Request Form](#)

Department of Orthopedic Surgery

Franklin BA and Brinks J (2015). "Cardiac rehabilitation: Underrecognized/underutilized." Current Treatment Options in Cardiovascular Medicine 17(12): 62.

[Full-Text](#)

Department of Internal Medicine

OPINION STATEMENT: Unfortunately, too many patients continue to rely on costly coronary revascularization procedures, cardioprotective medications, or both, as first-line strategies to stabilize the course of coronary heart disease. However, these palliative therapies do not address the foundational or most proximal risk factors for coronary disease, that is, unhealthy dietary habits, physical inactivity, and cigarette smoking. Because most acute myocardial infarctions evolve from mild-to-moderate coronary artery

stenosis (<70 % obstruction), rather than at the more severe obstructions that are commonly treated with coronary revascularization, these findings help explain the inability to demonstrate a reduction in acute cardiac events in most studies examining coronary artery bypass graft surgery and/or percutaneous coronary interventions. The delivery of comprehensive cardiovascular risk reduction, including exercise-based cardiac rehabilitation as an integral component, offers patients a bona fide treatment intervention to prevent recurrent cardiovascular events and the need for repeated revascularization procedures, while simultaneously providing referring physicians with ongoing surveillance data to potentially enhance their medical management.

Franklin BA, Brinks J and Hendrickson K (2015). "Healthy obesity? New insights counseling strategies for health-fitness professionals." ACSM's Health and Fitness Journal 19(5): 23-30.

[Full-Text](#)

Department of Internal Medicine

Understand the role of increased physical activity and improved cardiorespiratory fitness in helping to counter the adverse impact of obesity on cardiovascular health, with specific reference to the controversy regarding metabolically healthy obesity and the puzzling "obesity paradox." 2. Detail the principles of exercise prescription for overweight/obese clients, as well as the specific benefits of structured exercise and using activity-tracking tools for maximizing outcomes in weight loss interventions. 3. Summarize research-based counseling strategies to improve client's lifestyle behaviors, including readiness to change, motivational interviewing, and the five As approach to achieving behavior change. © 2015 American College of Sports Medicine.

Freij JB and **Freij BJ** (2015). "The earliest account of human cryptococcosis (Busse-Buschke disease) in a woman with chronic osteomyelitis of the tibia." Pediatric Infectious Disease Journal 34(11): 1278.

[Full-Text](#)

Department of Pediatrics

Georgiadis AG and **Zaltz I** (2015). "Slipped capital femoral epiphysis: Acute and chronic," In Nho S, Leunig M, Larson CM, Bedi A and Kelly BT (ed). Hip Arthroscopy and Hip Joint Preservation Surgery. New York: Springer. pp: 459-474.

[Full-Text](#)

Department of Orthopedic Surgery

Slipped capital femoral epiphysis (SCFE) involves displacement of the proximal femoral metaphysis relative to a fixed epiphysis, generally during a period of rapid growth and unique physeal susceptibility. Affected patients have characteristic clinical, histological, and radiologic features that contribute to the displacement. A number of concomitant clinical features and medical diagnoses should heighten a physician's suspicion of SCFE, prompting appropriate radiologic and laboratory workup. Limp and hip or knee pain in a patient between the ages of 10 and 16 should always include SCFE in the differential until proven otherwise. Once the diagnosis is made, appropriate treatment involves proximal femoral physeal stabilization by a number of surgical methods. The optimal surgical treatment of severe SCFE and its late sequelae remain an evolving and controversial subject. © Springer Science+Business Media New York 2015.

Giovanni T, Pietro T, Abdo J, Daouk H, **Hajj Hussein I**, Michel M and Angelo L (2015). "Targeted therapies for inflammatory bowel disease and colorectal cancer: An increasing need for microbiota-intestinal mutualism." Journal of International Translational Medicine 3(2): 123-129.

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Department of Biomedical Sciences (OU)

The involvement of intestinal microbiota and dysbiosis in the pathogenesis of inflammatory bowel disease (IBD) and colorectal cancer (CRC) is a well-established fact to be taken into real consideration when developing targeted therapies. This review aimed to depict what advances in our understanding of the role of intestinal flora in the pathogenesis of IBD and CRC is shaping up the therapeutic protocols of their management. It was demonstrated that there is a circadian regulation of colocytes gene expression in response to microbiota. In addition, dysbiosis leading to a decrease in microbiome biodiversity was also

described in IBD patients whereby thick layers of adherent mucosa associated bacteria exist both in ulcerative colitis (UC) and Crohn's disease (CD). Probiotics based approaches using lactobacilli and Bifidobacteria improved clinical symptoms of IBD's through the GALT immune modulation. In addition, fecal microbiota transplantation (FMT) has also been used for IBD treatment. It consists of transferring gastrointestinal microbiota from a healthy donor to an IBD patient by duodenal infusion of liquid stool suspension to establish microbial homeostasis. The passage of bacteria in the injured mucosal zone triggers chronic inflammation and eventually CRC development by creating a carcinogenic environment. Actually, high level of *Fusobacterium nucleatum* and other bacteria are prevalent in CRC patients, thus suggesting a potential role of these organisms in the initiation and progression processes due to the production of genotoxic metabolites causing a direct damage to DNA integrity. Moreover, regular probiotics intake was shown to actively prevent the whole process. In conclusion, the mutualistic relationship between microbiota and colonic mucosa proved useful in depicting some of the dynamics of the initiation and development of IBD and CRC. Therapies oriented towards establishing equilibrium of intestinal microbiota may represent the key strategy to switch off chronic inflammatory processes hitting colonic mucosa, thus preventing the onset of CRC.

Gjeorgjievski M, **Amin MB** and **Cappell MS** (2015). "Characteristic clinical features of *Aspergillus* appendicitis: Case report and literature review." [World Journal of Gastroenterology](#) 21(44): 12713-12721.

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Department of Pathology

Department of Internal Medicine

This work aims to facilitate diagnosing *Aspergillus* appendicitis, which can be missed clinically due to its rarity, by proposing a clinical pentad for *Aspergillus* appendicitis based on literature review and one new case. The currently reported case of pathologically proven *Aspergillus* appendicitis was identified by computerized search of pathology database at William Beaumont Hospital, 1999-2014. Prior cases were identified by computerized literature search. Among 10980 pathology reports of pathologically-proven appendicitis, one case of *Aspergillus* appendicitis was identified (rate = 0.01%). A young boy with profound neutropenia, recent chemotherapy, and acute myelogenous leukemia presented with right lower quadrant pain, pyrexia, and generalized malaise. Abdominal computed tomography scan showed a thickened appendiceal wall and periappendiceal inflammation, suggesting appendicitis. Emergent laparotomy showed an inflamed, thickened appendix, which was resected. The patient did poorly postoperatively with low-grade fevers while receiving antibacterial therapy, but rapidly improved after initiating amphotericin therapy. Microscopic examination of a silver stain of the appendectomy specimen revealed fungi with characteristic *Aspergillus* morphology, findings confirmed by immunohistochemistry. Primary *Aspergillus* appendicitis is exceptionally rare, with only 3 previously reported cases. All three cases presented with (1)-neutropenia, (2)-recent chemotherapy, (3)-acute leukemia, and (4)-suspected appendicitis; (5)-the two prior cases initially treated with antibacterial therapy, fared poorly before instituting anti-*Aspergillus* therapy. The current patient satisfied all these five criteria. Based on these four cases, a clinical pentad is proposed for *Aspergillus* appendicitis: clinically-suspected appendicitis, neutropenia, recent chemotherapy, acute leukemia, and poor clinical response if treated solely by antibacterial/anti-candidal therapy. Patients presenting with this proposed pentad may benefit from testing for *Aspergillus* infection by silver-stains/immunohistochemistry and considering empirical anti-*Aspergillus* therapy pending a tissue diagnosis. © The Author(s) 2015. Published by Baishideng Publishing Group Inc. All rights reserved.

Gjeorgjievski M, Mogrovejo E, **Cappell MS** and **Amin M** (2015). "Systemic AL-amyloidosis initially presenting as an isolated gastroesophageal junction amyloidosis." [American Journal of Gastroenterology](#) 110(Sup 1): S255.

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Department of Internal Medicine

Department of Pathology

A 55-year-old, African-American man with history of chronic abdominal pain, was admitted for progressive epigastric abdominal pain, anorexia and weight loss of 20 kilograms over the last year. Abdominal CT did not reveal any significant abnormalities. EGD revealed a cratered, non-bleeding, 10mm-wide, ulcerative-like

lesion at the gastroesophageal (GE) junction. Two non-bleeding cratered gastric ulcers with no stigmata of bleeding were found in the gastric antrum as well as few, medium-sized non-bleeding erosions at the incisura and in the gastric antrum. Pathologic examination of the GE junction revealed amyloidosis with sample being positive for Congo red and crystal violet stain. An immunohistochemical stains revealed 3+ lambda staining and 1+ kappa staining, consistent with monoclonal lambda light chain AL amyloidosis. The gastric biopsy was positive for *Helicobacter pylori*, however did not reveal amyloidosis. Subsequent bone marrow biopsy revealed plasma cell involvement of 4%. Electrophoresis and immunofixation results were consistent with AL amyloidosis. A repeat biopsy several months after revealed progression to diffuse gastrointestinal amyloidosis. Amyloidosis is a condition of extracellular fibrillar protein deposition, which is commonly associated with tissue damage and functional compromise. Primary amyloidosis usually represents an amyloidosis associated with immunocyte dyscrasia and is caused by clonal proliferation of plasma cells that synthesize an immunoglobulin that is prone to form amyloid. Gastrointestinal amyloidosis without previously diagnosed inflammatory or plasma cell disorders is very rarely seen. It may be found as an isolated entity or as a part of multi-organ involvement. In the gastrointestinal tract, amyloid proteins (irrespective of the type) can deposit in various parts, resulting in a mixture of symptoms of: abdominal pain, dysmotility, diarrhea, liver injury or bleeding. Suspicion of gastrointestinal amyloidosis, irrespective of underlying etiology, always requires a direct biopsy of the part affected. The frequency of amyloid deposition in different anatomic parts of the gastrointestinal tract, in patients with gastrointestinal amyloidosis was established in a case series consisted of 37 patients. The highest frequency was in the duodenum, followed by stomach and colorectum. Some authors suggest that amyloidosis should always be considered in the differential diagnosis of hematemesis and gastric tumors, while others suggest high suspicion of amyloidosis in patients with multiple myeloma and obscure gastrointestinal bleeding. (Figure Presented).

Gjeorgjievski M, **Nojkov B**, Kazanji N, **Cappell MS** and **Amin M** (2015). "*Helicobacter heilmannii* gastritis in a young patient with recent *Clostridium difficile* infection, without presence of associated risk-factors." *American Journal of Gastroenterology* 110(Sup 1): S528-S529.

[Request Form](#)

Department of Internal Medicine

Department of Pathology

An 18-year-old-female presented at gastroenterology office with dyspepsia. This symptom deteriorated significantly since patient suffered an episode of *Clostridium difficile* (*C. difficile*) infection, one year prior, which required hospitalization and was treated successfully with a 2-week course of metronidazole. The patient was otherwise healthy and did not receive any antibiotics within several years prior to presentation. She had no prior hospitalizations (besides the admission for *C. difficile* diarrhea) or any prior surgery. The patient received intermittent proton pump inhibitor (PPI) therapy for dyspepsia, over the past year, with minimal relief. Physical examination at the time of presentation was without abnormalities. Esophagogastroduodenoscopy (EGD) revealed erythematous gastropathy without other pathologic findings. Histologic analysis of gastric biopsies revealed moderate chronic inflammation of the gastric mucosa consistent with chronic gastritis. Diff -Quick stain was positive for a microorganism 7 micrometers in length, consistent with *Helicobacter heilmannii* infection. Patient was treated with triple therapy including amoxicillin, clarithromycin and lansoprazole, without *C. difficile* recurrence or other associated complications. Short-term symptomatic assessment, after the triple therapy, revealed improvement of patient's dyspepsia. *H. heilmannii*, previously called *Gastrospirillum hominis* is a spiral bacterium first reported in 1987. Histologically, this organism is long 3.5 - 7.5 micrometers and under electronic microscopy is seen as spiral coils with truncated ends that are flattened at the tips. The symptoms of *H. Heilmannii* infection may vary between patients from being symptom-free to having epigastric pain, decreased appetite, dyspepsia, nausea and vomiting. This is a first report describing occurrence of *H. heilmannii* gastritis in a young patient with no associated risk factors, but with a recent *C. difficile* infection. While the co-occurrence of these 2 entities in same patient may be incidental, future systematic research is warranted to assess for eventual association between these two gastrointestinal infections. (Figure Presented).

Gjeorgjievski M, Purohit T, **Amin M** and Patel A (2015). "Primary adenosquamous carcinoma of the cecum: A rare entity." [American Journal of Gastroenterology](#) 110(Sup 1): S161-S162.

[Request Form](#)

Department of Pathology

A 65-years-old female with a 2 month history of fatigue and iron deficiency anemia was sent for a screening colonoscopy. Patient's hemoglobin dropped to 8.9 g/dL from 11.4 g/dL in less than one year, despite patient being on iron supplementation. She denied any rectal bleeding, dark stools or change in bowel movements. There was no decrease in patient's weight. Colonoscopy revealed a frond-like, villous, fungating, infiltrative mass in the cecum and infiltrative, polypoid mass at the hepatic flexure. Both of them were biopsied with the cecal mass revealing adenoma with areas of ulceration and stromal desmoplasia, which were suspicious for adenocarcinoma. A CT scan of the abdomen with contrast confirmed the large lobulated mass in the cecal lumen. It appeared to involve the proximal appendix as well as the terminal ileum. Patient underwent right colectomy with histology confirming an invasive colonic adenocarcinoma with squamous and mucinous differentiation. The squamous areas were stained positive for CK5/6 and accounted for approximately 25% of the tumor. The adenocarcinoma component was stained positive for CK20 and CDX2. There was also prominent mucinous component that accounted for 25% of the tumor. (Figure Presented) Adenosquamous carcinoma of the lower gastrointestinal tract is a rare malignancy representing only 0.06 percent of all colorectal and anal cancers. Mean age of appearance is 67 years with a female predominance, most commonly occurring in Caucasians. Histogenesis is not fully understood with different theories including: malignant transformation of embryologic nests, presence of pluripotent stem cells with capability of multidirectional differentiation, squamous metaplasia of the intestinal mucosa as well as in situ transformation of squamous malignant neoplasm. Underlying condition is frequently involved into the process of squamous metaplasia and subsequent development of the tumor. Common conditions associated with adenosquamous carcinoma are: ulcerative colitis, human papilloma virus and radiation. There is no difference in clinical signs and symptoms of adenosquamous carcinoma when compared to adenocarcinoma. Both squamous and adenomatous components have a potential for metastasis, with squamous components metastasizing more frequently. Paraneoplastic syndromes are common in this type of cancer, with hypercalcemia occurring very frequently. The prognosis of adenosquamous carcinoma is worse than the prognosis of colorectal adenocarcinoma with mean survival of 12 months. It is associated with higher overall mortality and colorectal-specific mortality in comparison with adenocarcinoma. Surgical excision is the treatment of choice for adenosquamous carcinoma with adjuvant chemotherapy being part of every regimen.

Gladstone GJ and Brazzo BG (2015). "Endoscopic conjunctivodacryocystorhinostomy," In Cohen AJ, Mercandetti M and Brazzo B (ed). [The Lacrimal System: Diagnosis, Management, and Surgery](#). New York: Springer. pp: 155-162.

[Full-Text](#)

Department of Ophthalmology

Endoscopic conjunctivodacryocystorhinostomy is an effective procedure to treat nasolacrimal duct obstruction while avoiding an external incision. The procedure requires additional instrumentation and surgical training compared to traditional external approach, but has several advantages. Avoidance of external scar and accelerated healing time are afforded with this procedure. Thorough understanding of orbital and nasal anatomy is required to master this technique and achieve results comparable to the external approach. © Springer International Publishing Switzerland 2006, 2015.

Goldstein JA (2015). "Importance of direct coronary imaging to guide optimal PCI." [Cardiology \(Switzerland\)](#) 132(Sup 1): 4.

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Department of Internal Medicine

The ideal invasive coronary imaging tool should provide a complete roadmap of atherosclerotic burden throughout the coronary tree, delineate the architectural and compositional nature of each plaque, facilitate determination of coronary blood flow, and guide optimal PCI (delineation of optimal length of vessel stented, complete stent expansion and apposition, and detection of stent edge dissections and thrombosis).

Unfortunately, coronary angiography underestimates the magnitude of atherosclerotic burden and has significant limitations guiding optimal PCI. Employing angiography alone, stent complications (dissection, early or late stent thrombosis, or edge restenosis) may result from a geographical miss in stent placement (stent ends in an area with high plaque burden) or from incomplete stent expansion or malapposition. There is a growing body of evidence demonstrating that compared to angiographic guidance alone, PCI performed employing direct coronary imaging (IVUS, NIRS-IVUS, OCT) achieves superior outcomes by assuring complete lesion coverage, full stent expansion and apposition and to detect stent complications (e.g edge dissection and thrombosis). A recent meta-analysis (Zhang et al Eurointervention 2012;8:855-65) encompassing 11 studies in 19,619 documented the superiority of direct coronary imaging to facilitate optimal performance of PCI; compared with angiography guidance, IVUS-guided DES implantation was associated with a reduced incidence of Death (HR: 0.59, 95% CI: 0.48-0.73, p75% cases, resulting in longer, appropriately sized stents. Most important, IVUS guidance improved clinical outcomes, with a 33% reduction in MI, 50% reduction in stent thrombosis and 38% reduction TVR. OCT achieves the highest spatial resolution of existing imaging modalities (10 microns vs 100 microns for IVUS) and is an excellent method to prove optimal stent expansion and apposition and detect edge dissections. In aggregate, these observations emphasize the value of performing PCI guided by direct coronary imaging.

Goncalves L (2015). "Re: Prenatal features of isolated subependymal pseudocysts associated with adverse pregnancy outcome." Ultrasound in Obstetrics and Gynecology 46(6): 648.

[Full-Text](#)

Department of Obstetrics and Gynecology

Gonzalez A, Murcia CH, Romero R, Escobar E, Garcia P, Walker G, Gallas M, Dickens E, **McIntosh B**, Norwood W, Kim K, Rabaza J and Parris D (2015). "A multicenter study of initial experience with Single-Incision Robotic Cholecystectomies (SIRC) demonstrating a high success rate in 465 cases." Surgical Endoscopy and Other Interventional Techniques. ePub Ahead of Print.

[Full-Text](#)

Department of Surgery

Background: Recently, the robotic single-site platform has been used to ameliorate the difficulties seen in single-incision laparoscopic surgery (SILC) while preserving the benefits of standard laparoscopic cholecystectomy. The purpose of this study is to describe the clinical outcomes of a large series of single-incision robotic cholecystectomy (SIRC). Methods: Medical records of consecutive patients who underwent SIRC were retrospectively reviewed. All procedures were performed by six surgeons at five different North American centers involved in the study. All patients included in the study underwent a cholecystectomy attempted through single site at the umbilicus, using the da Vinci® Surgical System (Intuitive Surgical Inc. Sunnyvale, CA). Results: A total of 465 patients met study criteria. Median age was 48 years (range 18–89); 351 (75.5 %) were female and 304 (66.4 %) were overweight or obese. Except for gender, case characteristics differed significantly by surgeon/site. Previous abdominal surgery was reported for 226 (48.6 %) cases. SIRC was successfully completed in 455 (97.8 %) cases, and there were no conversions to open surgery. Median surgical time was 52 min with a decreasing trend after 55–85 cases. Male gender, obesity and diagnoses other than biliary dyskinesia were independent predictors of longer surgical times. The complication rate was 2.6 %. Conclusions: Our large, multicenter study demonstrates that robotic single-site cholecystectomy is safe and feasible in a wide range of patients. © 2015 Springer Science+Business Media New York

Grills IS, Johnson MD, Sura K, Ye H, Wloch JL, Prausa SK, **Gustafson GS** and **Yan D** (2015). "Advanced Radiation Therapy (RT) planning and delivery methods impact survival in Locally Advanced (LA) NSCLC." International Journal of Radiation Oncology Biology Physics 93(3): E410-E411.

[Full-Text](#)

Department of Radiation Oncology

Purpose/Objective(s): Prospective trials and retrospective dose-matched data demonstrate overall survival (OS) improvements with dose-escalated RT for LANSCLC. Recent randomized data (RTOG 0617) suggest an

OS detriment. Improvements in RT planning and their impact on OS are poorly understood. We analyzed survival outcomes after RT with/without planning FDG-PET, 4DCT, image-guided RT (IGRT), IMRT (v. 3DCRT), and escalated dose. Materials/Methods: 184 patients with clinical stage IIB-IIIb NSCLC underwent concurrent chemoRT at a single institution from 12/2000-9/ 2013. Median RT dose was 67Gy (57.6-78 Gy) in 36 fractions. 38% of patients had RT < 64Gy (Low Dose, LD); 63% > = 64Gy (High Dose, HD). Median age was 68y; Stage was IIB 13%, IIIA 52%, and IIIb 35%. Histology was 34% adenocarcinoma, 43% squamous cell, 23% NSCLC NOS/other. Nearly all (98.4%) had staging FDG-PET; 76% Brain MR or CT. RT planning employed PET-CT fusion in 52% and 4DCT in 50%. Online cone-beam CT IGRT was used for treatment in 63% (44% daily, 56% weekly.) 36% of patients had 3DCRT and 64% IMRT. DVH data were available for lung in 158 cases and heart in 144. The average mean lung dose was 16Gy (2.9-32.2) and lung V20 25.6% (5.2-55.3%); average mean heart dose 12.8Gy (0.1-54.2), and heart V5 44.8% (0-100%), V30 14.8% (0-89.7%). Patient and treatment parameters were analyzed for association with survival endpoints. Survival was analyzed using the Kaplan-Meier (KM) method. Results: Mean (median) follow-up time was 24 (16) mos (m) (1.6-120). Median OS for all patients was 20m. In this unmatched cohort, LDRT median OS was 14.9 m v. 21.7 m for HDRT (p=0.34). Contrary to 0617, average doses delivered to the heart (mean, V5, 10, 20, 30, 40, 50, 60) and lung (mean, V20, 30, 40, 50) were statistically lower with HDRT (only exception lung V5), p<0.05-<0.001. IMRT (v. 3DCRT) was associated with lower lung (mean, V20-50) and heart (V20-60, trend mean 17.1 v 11.7, p 0.60), p<0.015 to <0.001, doses, but higher lung V5. For all patients, 2y OS, local recurrence and distant metastasis were 43%, 30%, and 49%. KM estimates of OS showed no statistically significant differences related to RT Dose (LD v. HD), planning PET-CT, or IMRT. Planning 4DCT (2y OS 49% v. 36%, p 0.05) and IGRT (2y OS 46% v. 37%, trend only p=0.15) were associated with better OS. Evaluating multiple other patient, tumor, staging, and treatment factors on UVA, only multiple heart dose parameters (mean, V5, 10, 20, 30, p 0.048-0.007) predicted OS. Higher lung V5 trended for lower OS (p=0.08). On ROC analysis, heart mean dose and V30 were most predictive, but no clear cut-offs identified. Conclusion: These data suggest that advanced RT treatment methods, including 4DCT and IGRT improve survival in LANSCLC. Higher heart doses were detrimental. Planning methods to reduce heart and lung dose and strict adherence to DVH criteria should be employed in clinical practice and cooperative group trials.

Gupta A (2015). ""Choose your plate": A nutritional education curriculum intended to create young health advocates." *FASEB Journal* 29(Sup 1): 911.913.

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OUWB Medical Student Author

Gupta P, Gaines N, **Sirls LT** and **Peters KM** (2015). "A multidisciplinary approach to the evaluation and management of interstitial cystitis/bladder pain syndrome: An ideal model of care." *Translational Andrology and Urology* 4(6): 611-619.

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Department of Urology

Interstitial cystitis/bladder pain syndrome (IC/BPS) is a complex syndrome that has long been treated with bladder directed therapies, which often fail to address the multiple underlying etiologies that can contribute to this disease process. This disease often involves symptoms that extend beyond the bladder and involve the pelvic floor making it crucial for clinicians to approach the patient using a multidisciplinary team. This article will discuss the underlying etiologies for IC/BPS and describe the multidisciplinary approach which we have found to be extremely successful in managing this patient population. © Translational Andrology and Urology. All rights reserved.

Hajj Hussein I, Chams N, Chams S, El Sayegh S, Badran R, Raad M, Gerges-Geagea A, Leone A and Jurjus A (2015). "Vaccines through centuries: Major cornerstones of global health." *Front Public Health* 3(Nov): 269.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Multiple cornerstones have shaped the history of vaccines, which may contain live-attenuated viruses, inactivated organisms/viruses, inactivated toxins, or merely segments of the pathogen that could elicit an

immune response. The story began with Hippocrates 400 B.C. with his description of mumps and diphtheria. No further discoveries were recorded until 1100 A.D. when the smallpox vaccine was described. During the eighteenth century, vaccines for cholera and yellow fever were reported and Edward Jenner, the father of vaccination and immunology, published his work on smallpox. The nineteenth century was a major landmark, with the "Germ Theory of disease" of Louis Pasteur, the discovery of the germ tubercle bacillus for tuberculosis by Robert Koch, and the isolation of pneumococcus organism by George Miller Sternberg. Another landmark was the discovery of diphtheria toxin by Emile Roux and its serological treatment by Emil Von Behring and Paul Ehrlich. In addition, Pasteur was able to generate the first live-attenuated viral vaccine against rabies. Typhoid vaccines were then developed, followed by the plague vaccine of Yersin. At the beginning of World War I, the tetanus toxoid was introduced, followed in 1915 by the pertussis vaccine. In 1974, The Expanded Program of Immunization was established within the WHO for bacille Calmette-Guerin, Polio, DTP, measles, yellow fever, and hepatitis B. The year 1996 witnessed the launching of the International AIDS Vaccine Initiative. In 1988, the WHO passed a resolution to eradicate polio by the year 2000 and in 2006; the first vaccine to prevent cervical cancer was developed. In 2010, "The Decade of vaccines" was launched, and on April 1st 2012, the United Nations launched the "shot@Life" campaign. In brief, the armamentarium of vaccines continues to grow with more emphasis on safety, availability, and accessibility. This mini review highlights the major historical events and pioneers in the course of development of vaccines, which have eradicated so many life-threatening diseases, despite the vaccination attitudes and waves appearing through history.

Han E, Gupta P and **Gillera JP** (2015). "Effect of hormonal changes on voiding in the elderly woman." Current Bladder Dysfunction Reports 10(4): 362-369.

[Full-Text](#)

Department of Urology

Hormonal loss after menopause result in changes that occur to the vaginal epithelium, which shares a common embryological origin with the lower urinary tract. These changes due to hypoestrogenism lead to symptoms of urinary frequency, urgency, incontinence, dysuria, and recurrent urinary tract infections. Replacement of estrogen can provide benefits to some of these conditions, but potential complications associated with the use of unopposed estrogen (including cardiovascular and oncogenic) have given clinicians pause for concern before administering it to patients without adequate counseling. This review article will examine the pathophysiology of the urogenital changes that occur after hormonal loss. We will discuss several well-designed trials that answer questions about the relationship between hormone replacement therapy and overactive bladder, stress incontinence, and recurrent urinary tract infections. In light of the controversy over estrogen therapy and patients' warranted concerns about the risks, we will also discuss newer hormonal agents, their role in treating this condition, as well as how we counsel patients on a reasonable hormone replacement therapy (HRT) regimen. © 2015, Springer Science+Business Media New York.

Hans DR, Dubé P and **Wasserman JA** (2015). "Experimental evidence showing that physician guidance promotes perceptions of physician empathy." AJOB Empirical Bioethics. ePub Ahead of Print.

[Request Form](#)

Department of Biomedical Sciences (OU)

Background: This article reports a study that assessed the link between physician guidance and perceptions of empathy. Previous literature suggests that patients prefer medical decision making to be a collaborative process. However, no study has specifically tested how physician guidance affects the way the patient perceives his or her physician's empathy. As a period of laissez-faire autonomy appears to be drawing to a close, it will be important to understand what kinds of guidance have positive effects on the physician-patient relationship. Methods: This study used a matched-vignette design to investigate whether individuals perceive a physician who provides an opinion on the best course of action for a patient as more empathic than one who does not. Surveys were administered at local YMCAs to capture the widest demographic possible, with participants randomly assigned to one of two vignettes. Results: Findings suggest that patients may indeed view physicians who guide medical decision making as more empathic.

Specifically, those participants assigned the vignette in which the physician guided the patient's decision rated that physician as more empathic, even while controlling for gender. Conclusions: Some forms of physician input into patient decision making clearly improve patients' perceptions of physicians' empathy. However, more research is needed as to what types of involvement with patient decisions promote positive perceptions of physicians and under what conditions. © 2016 Taylor & Francis Group, LLC

Hansford BG, Pytel P, **Moore DD** and Stacy GS (2015). "Osteoma of long bone: An expanding spectrum of imaging findings." *Skeletal Radiology* 44(5): 755-761.

[Full-Text](#)

Department of Orthopedic Surgery

Osteoma of long bone is an extremely rare, benign bone-forming surface lesion with the largest published case series consisting of only 14 patients. The most important and often most difficult lesion to differentiate from osteoma of long bone radiographically is parosteal osteosarcoma, which is a rare, low-grade surface osteosarcoma with the potential for dedifferentiation. Reports of imaging studies of osteoma of long bone depict a well-defined ossified mass arising from the surface of the diaphysis or metadiaphysis of a long bone. A characteristic feature is the homogeneity of the mass, with uniform density near or equal to that of cortical bone from the base of the lesion to its periphery. The 45-year-old female in this case presented with left hip fullness and was subsequently found to have a proximal femoral osteoma, which was unique in that it contained large fatty marrow spaces that corresponded to bands of relatively low density on plain radiography and computed tomography, giving it a heterogeneous appearance atypical of osteoma of long bone. Furthermore, the osteoma reported here was associated with a small but separate nodular focus of ossification in the adjacent soft tissue. These findings led to a presumptive diagnosis of parosteal osteosarcoma with a local soft tissue metastasis or satellite nodule resulting in radical resection of the tumor. Definitive diagnosis of osteoma was made on histology of both the parent lesion and ossified nodule as no neoplastic spindle cell proliferation was present to establish a diagnosis of low-grade osteosarcoma. This represents, to the best of our knowledge, the first such presentation of osteoma of long bone.

Hanson ID, **Hanzel GS** and **Shannon FL** (2015). "Mitral valve repair after annuloplasty ring dehiscence using MitraClip." *Catheterization and Cardiovascular Interventions*. ePub Ahead of Print.

[Full-Text](#)

Department of Internal Medicine

Department of Surgery

Dehiscence of a surgical mitral annuloplasty ring for repair of functional mitral regurgitation (MR) is an infrequently reported complication that often manifests as recurrent MR and heart failure. Re-do mitral valve surgery to correct ring dehiscence may not be feasible for patients at high risk of operative mortality or serious morbidity. We report two cases of mitral annular ring dehiscence and severe mitral regurgitation in patients at prohibitive risk for re-do mitral valve surgery who were successfully treated with MitraClip.

Hanson ID and **Safian RD** (2015). "Longitudinal translocation of lipid-rich plaque after carotid artery stenting." *Journal of Interventional Cardiology* 28(5): 498-499.

[Full-Text](#)

Department of Internal Medicine

Hauck CR, Ye H, **Gustafson GS**, **Chen PY**, Sebastian E, Limbacher A and **Krauss DJ** (2015). "Increasing fractional doses increases the probability of benign prostate-specific antigen bounce in patients undergoing definitive high-dose-rate brachytherapy for prostate cancer." *International Journal of Radiation Oncology Biology Physics* 93(3): S122-S123.

[Full-Text](#)

Department of Radiation Oncology

Purpose/Objective(s): Prostate-specific antigen (PSA) bounce is defined as a temporary elevation of PSA above a prior nadir, and is a common source of anxiety for patients. It occurs more commonly in patients treated with brachytherapy. The purpose of this study was to determine if the frequency of a PSA bounce following high-dose-rate (HDR) interstitial brachytherapy for the treatment of prostate cancer is associated

with individual treatment fraction size. Materials/Methods: Between 1999 and 2014, 565 patients were treated at our institution for low- or intermediate-risk prostate cancer with definitive HDR brachytherapy and had at least 2 subsequent PSA measurements. Four different fraction sizes were used: 950 cGy x 4, 1200 cGy x 2, 1350 cGy x 2, and 1900 cGy x 1. Three different definitions of PSA bounce were applied: >0.5, >1.0, and >2.0 ng/mL above prior nadir. Outcomes within the first 3 years were analyzed utilizing the Kaplan-Meier method and logrank test. Only patients who did not have subsequent confirmed biochemical failure were included in analysis. Results: The median follow-up was 3.7 years (range, 1-13.5 years). The median age of patients at time of treatment was 62 years. Eleven percent of patients were treated with androgen deprivation therapy (ADT) prior to brachytherapy; no patients treated with a single fraction of 1900 cGy received pretreatment ADT. Complete results of the 1-, 2-, and 3-year rates of observed PSA bounce are shown in Table 1. The actuarial 3-year rate of PSA bounce for the entire cohort was 21.5%, 14.2%, and 7.1% for nadir + 0.5, + 1.0, and + 2.0 ng/mL, respectively. The 3-year rate of PSA bounce >0.5 ng/mL was 14.8%, 22%, 27%, and 55.3% for the 950, 1200, 1350, and 1900 cGy per fraction levels, respectively (P < .001). For patients treated with a single 1900 cGy fraction, the 1-, 2-, and 3-year rates of PSA bounce exceeding the Phoenix biochemical failure definition ("nadir + 2") were 7.1%, 18.5%, and 18.5%, significantly higher than the rates for all other administered dose levels (P = .02). Conclusion: The incidence of PSA bounce increases with increasing HDR brachytherapy fraction size. As single-fraction HDR therapy continues to be investigated, knowledge of the posttreatment PSA kinetics will serve to lessen patient anxiety and aid in decision making regarding management of potential biochemical failures.

Hein J, Reilly JM, Chae J, **Maerz T** and **Anderson K** (2015). "Retear rates after arthroscopic single-row, double-row, and suture bridge rotator cuff repair at a minimum of 1 year of imaging follow-up: A systematic review." Arthroscopy-the Journal of Arthroscopic and Related Surgery 31(11): 2274-2281.

[Full-Text](#)

Department of Surgery

Department of Orthopedic Surgery

Purpose: To determine whether there are differences in retear rates among arthroscopic single-row, double-row, and suture bridge rotator cuff repair. Methods: The literature was systematically reviewed for clinical outcome studies assessing arthroscopic single-row, double-row, or suture bridge rotator cuff repair. All included studies indicated the imaging-diagnosed retear rate stratified by preoperative tear size at a minimum of 1 year of follow-up, and retears were diagnosed with either magnetic resonance imaging, ultrasound, or arthrogram. Only studies with comprehensive surgical methods were included, and the repair type was confirmed by the number of rows of fixation and suture configuration. Studies from journals with an impact factor below 1.5 were excluded. Retear rates were grouped and statistically compared using chi 2 tests. Results: Thirty-two studies met the inclusion criteria, yielding a total of 2,048 repairs. Double-row repair (DR) and suture bridge repair (SB) both had significantly lower retear rates than single-row repair (SR) for tears sized 1 to 3 cm (DR, P < .001; SB, P < .001), less than 3 cm (DR, P < .001; SB, P < .004), greater than 3 cm (DR, P = .016; SB, P = .003), and greater than 5 cm (DR, P = .003; SB, P = .003), as well as total retear rates (DR, P = .024; SB, P = .022). DR and SB did not differ significantly from each other in any tear size category. Conclusions: Both DR and SB have lower retear rates than SR in most tear size categories. No differences in retear rates were found between DR and SB.

Hohenwarter EJ, Stone J, O'Moore P, Smith S, Selby Jr JB, Lewandowski RJ, Samuels SL, Kiproff P, Trost DW, **Handel J**, Gandras EJ, Madoff DC, Vlahos A and Rilling WS (2015). "Multicenter trial of the VenaTech Convertible Filter: A novel approach to IVC filtration." Cardiovascular and Interventional Radiology 38(3): S190-S191.

[Full-Text](#)

Department of Diagnostic Radiology and Molecular Imaging

Purpose: Existing retrievable filter platforms have limited points of contact with the dynamic IVC wall which can potentially lead to complications. The convertible filter is a new concept based on a durable permanent IVC filter design in which the filter is not retrieved but converted into a stent configuration. The primary objective is to demonstrate that the successful filter conversion rate is no lower than the reported IVC filter retrieval success. The secondary objective is the 6-month major device-related adverse event rate with a

converted filter. Material and Methods: This is an IDE multicenter, prospective, single- arm, historically controlled study with a total of 148 patients. Patients were enrolled for standard indications for retrievable filter placement. Evaluation of safety and performance in 61 subjects in whom the filter has been implanted, converted, and followed up for 6 months has been completed to date. Results: All filter implants were successful. The technical success rate for filter conversion to date is 93% (77/83). No serious conversion-related events have been reported. To date, 61 patients whose filter was converted have completed at least 6 months of follow-up with no delayed complications such as migration or penetration of the legs through the wall of the vena cava. Conclusion: Preliminary data suggests the VenaTech Convertible Filter is a safe and effective temporary filter with favorable conversion rates compared to reported IVC filter retrieval rates. Early results show decreased incidence of IVC wall perforation vs current retrievable filter designs and no serious adverse events at 6 months related to filter conversion.

Hong R (2015). "Cochlear implantation," In Larouere MJ, Babu SC and Bojrab DI (ed). Surgical Techniques in Otolaryngology-Head and Neck Surgery: Otologic and Neurotologic Surgery. Daryaganj: Jaypee Brothers Medical Pub. pp: 121-130.

[Request Form](#)

Department of Surgery

Hong R and **Babu S** (2015). "Osseointegrated devices," In Larouere MJ, Babu SC and Bojrab DI (ed). Surgical Techniques in Otolaryngology-Head and Neck Surgery: Otologic and Neurotologic Surgery. Daryaganj: Jaypee Brothers Medical Pub. pp: 199-208.

[Request Form](#)

Department of Surgery

Hong R and **Babu S** (2015). "Retrocochlear hearing disorders," In Sclafani A (ed). Total Otolaryngology Head and Neck Surgery. New York: Thieme Medical Publishing. pp: 990-994.

[Request Form](#)

Department of Surgery

Hymas RV, Taqeeq MA, **Grills IS**, **Chen PY**, **Krauss DJ**, Marvin K, Ye H and **Dilworth JT** (2015). "Outcomes for patients with atypical and anaplastic meningioma treated with surgical resection with or without radiation therapy." International Journal of Radiation Oncology Biology Physics 93(3): E109-E110.

[Full-Text](#)

Department of Radiation Oncology

Purpose/Objective(s): Atypical and anaplastic/malignant meningiomas (AM) are relatively rare, and the existing data regarding the role of adjuvant radiation therapy (RT) following resection are conflicting. We report outcomes of AM patients to investigate the potential impact of extent of resection and adjuvant RT on recurrence and survival. Materials/Methods: We identified 49 consecutive patients with a pathologic diagnosis of WHO grade II (n=44) or III (n=5) meningioma treated with resection with or without adjuvant RT between 1998 and 2014. The median age at diagnosis was 63 years (range 26-87), and 57% were male. Twenty-three tumors had a gross total resection (GTR) alone, 13 had a GTR followed by adjuvant RT (GTR + RT), 5 had a subtotal resection (STR) alone, and 8 had STR and adjuvant RT (STR + RT). The median RT dose was 54 Gy (range 54-60) for atypical and 60 Gy (range 54-60) for anaplastic histology, typically prescribed to the cavity or enhancement with a 0.7-1.5 cm expansion for atypical tumors and 3-4 cm for malignant histology. Patients who recurred were treated with salvage therapy (re-resection, RT, or both). Failure after salvage and the number of salvage treatments were identified. Results: With a median follow-up time of 2.9 years, 18 of 49 patients recurred. Table 1 presents the recurrence, overall survival (OS), and salvage data based on surgery and RT characteristics and compares the sub-groups. Notably, there were significantly fewer failures after salvage and fewer salvage procedures in the GTR+RT group than the GTR alone group (P=0.027 and 0.019, respectively) Conclusion: These retrospective data report outcomes for patients treated with surgery with and without adjuvant RT and provide some insight regarding salvage for patients who progress. While this study is underpowered to make statistical comparisons regarding initial failure rates,

these data suggest that adjuvant fractionated RT following resection of AM reduces local recurrence and subsequent salvage procedures for patients who had a GTR. The RTOG is currently developing a clinical trial to investigate this question in a prospective multi-institutional fashion. (Table Presented).

Jae SY, **Franklin BA**, Choo J, Choi YH and Fernhall B (2015). "Exaggerated exercise blood pressure response during treadmill testing as a predictor of future hypertension in men: A longitudinal study." [American Journal of Hypertension](#) 28(11): 1362-1367.

[Full-Text](#)

Department of Internal Medicine

BACKGROUND The purpose of this study was to evaluate receiver operating characteristic curves to identify optimal cutoff values of exercise systolic blood pressure (SBP) using both peak SBP and relative SBP (peak SBP minus resting SBP) as predictors of future hypertension (HTN). **METHODS** Participants were 3,742 healthy normotensive men who underwent symptom-limited treadmill testing at baseline. Incident HTN was defined as SBP/diastolic blood pressure greater than 140/90mm Hg and/or diagnosed HTN by a physician. **RESULTS** During an average 5-year follow-up, 364 (9.7%) new cases of HTN were observed. The most discriminatory cutoff values for peak SBP and relative SBP for predicting incident HTN were 181mm Hg (areas under the curve (AUC) = 0.644, sensitivity = 54%, and specificity = 69%) and 52mm Hg (AUC = 0.549, sensitivity = 64.3%, and specificity = 44.6%), respectively. Participants with peak SBP greater than 181mm Hg and relative SBP greater than 52mm Hg had 1.54-fold (95% CI: 1.23-1.93) and 1.44-fold (95% CI: 1.16-1.80) risks of developing HTN after adjusting for potential confounding variables. When these 2 variables were entered simultaneously into the Cox proportional hazards regression model with adjustment for potential confounding variables, only peak SBP (relative risk: 1.39, 95% CI: 1.02-1.89) was a predictor of the development of HTN. **CONCLUSIONS** The most accurate discriminators for peak and relative SBP during treadmill exercise testing to predict incident HTN were greater than 181 and 52mm Hg, respectively, in normotensive men. A peak SBP greater than 181mm Hg during treadmill exercise testing may provide a useful predictor for the development of HTN in clinical practice. © American Journal of Hypertension, Ltd 2015.

Jae SY, Kurl S, **Franklin B** and Laukkanen J (2015). "Changes in cardiorespiratory fitness predict incident hypertension: A population-based long-term study." [European Heart Journal](#) 36(Sup 1): 462.

[Request Form](#)

Department of Internal Medicine

Jamali AM, Ramesh G, Sharafi M, **Ditkoff J** and **Bahl A** (2015). "Impact of early urine specimen collection on emergency department time to disposition." [Annals of Emergency Medicine](#) 66(4): S8-S9.

[Full-Text](#)

Department of Emergency Medicine

Study Objectives: To evaluate whether a triage initiated urine specimen collection process would decrease emergency department (ED) time to disposition. **Methods:** This IRB-approved prospective, randomized control study was implemented at a suburban Level one trauma center with greater than 120,000 ED visits per year. A convenience sample of patients was recruited over the span of two months. Non-ambulance patients 21 years and older, with chief complaint of abdominal pain, flank pain, pelvic pain, and urinary complaints were eligible participants. Subjects were randomized into the experimental or control group using an envelope system. The control group proceeded thru the treatment process in normal fashion with the visit beginning at the greeter desk and culminating in the treatment area. After physician evaluation and if necessary, requests for urine samples were initiated per routine care. Patients in the experimental group received a urinalysis packet including a cup at the greeter desk upon arrival to the ED. The greeter prompted patients to provide a urine sample in the triage restrooms. These patients then proceeded to the treatment areas with urine samples in hand. Urine samples were then sent for lab analysis after physician evaluation and order placement as needed. A two-sample Wilcoxon rank-sum test was conducted on the data using SAS software (version 9.3) for Windows and R version 2.15.1 for Windows. **Results:** Two hundred eight patients were recruited. One hundred twenty-one patients were randomized into the control arm and 87

patients into the experimental arm. Thirty-eight patients were excluded from our experimental group because they could not give a urine sample at the time of recruitment. It was determined that there was no statistically significant difference in time to disposition between subjects in the experimental group (mean of 5.25 hours) and subjects in the control group (mean of 5.31 hours), $P = .5257$. This prospective blinded randomized control study demonstrates that providing urine specimen cups to patients with certain chief complaints does not significantly shorten patients' time to disposition in the ED. (Figure Presented).

Johnson MD, Baschnagel AM, Stone BM, Thibodeau BJ, Galoforo S, **Grills IS**, Hanna A and **Wilson GD** (2015). "Novel target identification in pancreatic adenocarcinoma." International Journal of Radiation Oncology Biology Physics 93(3): E535.

[Full-Text](#)

Department of Radiation Oncology

Purpose/Objective(s): To identify new targeted agents for use in treatment of pancreatic ductal adenocarcinoma (PDAC) by screening clinically obtained tissue samples from treated patients. **Materials/Methods:** 10 patient samples of PDAC treated with resection and 6 treated with neoadjuvant chemoradiation with gemcitabine followed by resection were identified from our institution's biobank. Fresh frozen tissue was collected at the time of pancreatectomy. The 6 patients treated preoperatively were selected due to poor response to therapy with substantial viable tumor remaining. RNA was then isolated and gene expression analysis performed using human exome sequencing on Affymetrix microarrays. Gene expression profiles were then compared between the 2 groups. Differentially expressed genes were identified by ANOVA ($P \leq 0.01$) and 2.0 fold cutoff. In subsequent studies Panc1 and MiaPaCa2 cell lines were studied using a novel tyrosine kinase inhibitor AZD1332 that exhibits a potent and selective effect on Trk receptors either alone or in combination with radiation in growth inhibition and clonogenic survival assays. **Results:** There were 99 genes differentially expressed between the resected PDAC compared with PDAC treated with chemoradiation. Using sub-network expression analysis, several neuroendocrine-related sub-networks were highly represented by the Fisher's exact test including neuronal differentiation 1 (NEUROD1), CHGB, pancreatic and duodenal homeobox 1 (PDX1), neurogenin 3 (NEUROG3) and brain-derived neurotrophic factor (BDNF). These were upregulated in patients treated neoadjuvantly. NEUROD1 is a basic helix-loop-helix transcription factor upstream of the receptor tyrosine kinases TrkA, B and C. Clonogenic survival revealed a significant dose-dependent cytotoxicity of AZD1332 in both cell lines. In Panc1, at drug concentrations of 1 μM and 2.5 μM % survival was 65% and 32% respectively normalized to PE. For MiaPaCa2, 1 μM and 2.5 μM % survival was 74% and 13% normalized to PE. When combined with increasing dose of radiation therapy in clonogenic survival, AZD1332 showed modest sensitization when compared to RT alone in the Panc1 cell lines. **Conclusion:** Neoadjuvant therapy alters gene expression of PDAC highlighting the NEUROD1 pathway. Upstream inhibition of Trk receptors combined with radiation therapy showed modest sensitization in vitro. In vivo xenograft studies are in progress.

Johnson MD, Sura K, Blas KG, Ye H and **Grills IS** (2015). "Salvage treatment for regional recurrence following definitive surgery or Stereotactic Body Radiation Therapy (SBRT) for early-stage Non-Small Cell Lung Cancer (NSCLC)." International Journal of Radiation Oncology Biology Physics 93(3): E417-E418.

[Full-Text](#)

Department of Radiation Oncology

Purpose/Objective(s): 15-20% of patients treated with surgical resection or stereotactic body radiation therapy (SBRT) for early stage NSCLC will experience isolated regional recurrence (RR). Despite this, salvage rates are rarely reported for this population. We analyzed efficacy of salvage concurrent chemoradiation in this population and compared outcomes with similar patients presenting with locally advanced (LA)-NSCLC using a matched pair analysis. **Materials/Methods:** Between January 2003 to June 2014, 155 patients with LA-NSCLC with nodal disease were treated with radiation therapy (RT) with curative intent. 17 patients were treated in a salvage fashion for isolated RR from previous surgery or SBRT. 11 patients presented initially with Stage IA disease (65%), 4 with IB (24%) and 2 with IIIA (11%) due to occult N2 disease discovered at resection (no post-operative radiation therapy delivered). Median patient age was 73y; 11 patients treated with definitive surgical resection (6 lobectomy and 5 wedge) and 6 patients with SBRT. Of the 11 surgical

patients, 4 underwent mediastinoscopy, 7 had lymph node dissection and 4 had lymph node sampling; no SBRT patients underwent invasive nodal staging. At recurrence, 14 patients had N2 disease, 2 N3 and 1 N1. The median interval between treatments was 17.7 months (6.8 - 67.2 mo). Median RT dose was 74 Gy (60 - 74 Gy). 16 of the patients underwent concurrent chemotherapy and 1 patient declined chemotherapy. Patients were then matched 1:2 with locally advanced patients based on nodal stage, age +/- 5 years, gender, and RT dose yielding a total of 51 patients. Matched patients had median age 74 with Stage IIB was 6%, IIIA was 68%, IIIB was 26%. Clinical endpoints were assessed using the Kaplan-Meier (KM) method with log rank and characteristics with two-tailed t-tests and chi square. Results: Median follow-up was 14.0 mos for entire cohort; 13.9 mo (1.2 - 59.2) for RR group vs 14.8 mo for LA (1.1 - 55.5) (p=0.87). Median and 2y OS was 32.5 mos and 54% for RR group vs 21.2 mos and 40% for LA (p=0.84). There were no significant differences in 2y rates of LR (28% RR vs 47% LA, p=0.16), RR (18% RR vs 28% LA, p=0.87), or DM (30% RR vs 54%, p=0.27); however 2y PFS trended toward improvement with RR (57% RR vs 36% LA, p=0.11). For the RR group, acute grade 2 esophagitis was seen in 7 patients (41%), grade 2 dyspnea in 3 (18%), and grade 2 pneumonitis in 2 (12%). 1 patient (6%) had grade 3 pneumonitis and 1 patient (6%) had grade 3 dyspnea; no toxicity grade \geq 4 reported. Conclusion: In this analysis, salvage chemoradiation for RR of NSCLC following surgery or SBRT was well tolerated and had a favorable PFS and OS at least comparable to similar patients presenting with LA-NSCLC. These results suggest that aggressive salvage therapy in this population is warranted.

Jones M, Ferris JA and **Taylor RS** (2015). "Progressive lower extremity weakness due to nitrous oxide induced myelopathy: A case report." PM & R: Journal of Injury, Function & Rehabilitation 7(9): S108.

[Full-Text](#)

Department of Physical Medicine and Rehabilitation

Case Description: An 18-year-old female presented to the Emergency Department with hand numbness, progressive lower extremity weakness, and bilateral foot drop. Her symptoms began 2-3 weeks prior to presentation and had been getting worse. She denied bulbar symptoms or bowel and bladder dysfunction. On examination, she was found to have 4/5 (Medical Research Council) bilateral proximal lower extremity muscle strength and 2/5 distal strength. Upper extremity strength was normal. Reflexes were absent in the upper extremities, 2+ for the patellar, and 1+ for the achilles. Her gait was ataxic. On discussion with the patient, she revealed that she was a frequent recreational nitrous oxide user. Setting: Tertiary Care Hospital. Results or Clinical Course: Magnetic resonance imaging (MRI) demonstrated extensive, non-enhancing increase of T2 signal involving the dorsal columns of the cervical spinal cord and scattered areas within the dorsal columns of the thoracic cord. Vitamin B12 and methylmalonic acid levels were drawn which were normal, although the patient had been supplemented with vitamin B12 at an outside hospital prior to her presentation at our institution. Other causes of posterior column degeneration including HIV, syphilis, and heavy metals were ruled out. The patient was diagnosed with nitrous oxide induced myelopathy. She was admitted to inpatient rehabilitation (IPR) where her course was complicated by ataxia and lower extremity weakness. At the time of discharge, she was able to ambulate 100 ft with bilateral AFOs. Discussion: Nitrous oxide induced myelopathy is a known consequence of nitrous oxide abuse due to irreversible oxidation and thus inactivation of vitamin B12. Although vitamin B12 levels are frequently low in this condition, this is not always a requirement. Conclusion: Nitrous oxide is a commonly used recreational drug that can result in devastating consequences. Screening for nitrous oxide use should be performed in young patients presenting with symptoms of myelopathy.

Kashyap M, Yoshimura N, Smith PP, **Chancellor M** and Tyagi P (2015). "Characterization of the role of HCN channels in beta3-adrenoceptor mediated rat bladder relaxation." Bladder (San Franc) 2(2): e15.

[Request Form](#)

Department of Urology

OBJECTIVE: The second messenger cAMP is involved in both beta3 adrenoceptor (beta3-AR) mediated detrusor relaxation and the kinetics of Hyperpolarization-activated cyclic nucleotide-gated (HCN) channels. Here we characterized the effect HCN channel activation and possible interaction with beta3-AR in bladder. MATERIALS AND METHODS: Bladder tissues from Sprague-Dawley rats and Human organ donors were

obtained for studying species-specific expression of HCN channels by real-time qPCR and Western Blot. Effect of beta3-agonist on rat bladder strips (0.5 x 0.5 x 7 mm in size) was studied during activation and blockade of HCN channels by Lamotrigine and ZD7288, respectively. RESULTS: Expression of all four genes encoding for HCN channels (HCN1-4) was detected separately in bladder mucosa and detrusor from human and rat bladders. Species based differences were evident from relatively higher expression of HCN4 isoform in human bladder and that of HCN1 in rat bladder. Western blot confirmed the findings at mRNA level. Cumulative application beta3-AR agonist CL316,243 produced a concentration dependent decrease in resting tension of rat bladder strips expressed as integral of mechanical activity. Pre-incubation of HCN channel blocker ZD 7288 opposed the relaxant effect of CL316,243, whereas co-administration of lamotrigine with CL316,243 at equal molar concentrations caused an additive decrease in resting tension. Cumulative addition of ZD7288 and lamotrigine in absence of CL316,243 showed opposing effects on detrusor contractility. CONCLUSIONS: Species-specific differences were noted in expression of HCN channels in bladder. Opposing effects ZD7288 and Lamotrigine in the action of beta3-AR agonist demonstrate possible functional interaction of HCN channels and beta3-AR in detrusor contractility.

Kauf TL, McKinnon P, Corey GR, Bedolla J, Riska PF, **Sims M**, Jauregui-Peredo L, Friedman B, Hoehns JD, Mercier RC, Garcia-Diaz J, Brennehan SK, Ng D and Lodise T (2015). "An open-label, pragmatic, randomized controlled clinical trial to evaluate the comparative effectiveness of daptomycin versus vancomycin for the treatment of complicated skin and skin structure infection." [BMC Infectious Diseases](#) 15(1): Num 503.

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Department of Internal Medicine

Background: Treatment of complicated skin and skin structure infection (cSSSI) places a tremendous burden on the health care system. Understanding relative resource utilization associated with different antimicrobials is important for decision making by patients, health care providers, and payers. Methods: The authors conducted an open-label, pragmatic, randomized (1:1) clinical study (N = 250) to compare the effectiveness of daptomycin with that of vancomycin for treatment of patients hospitalized with cSSSI caused by suspected or documented methicillin-resistant Staphylococcus aureus infection. The primary study end point was infection-related length of stay (IRLOS). Secondary end points included health care resource utilization, cost, clinical response, and patient-reported outcomes. Patient assessments were performed daily until the end of antibiotic therapy or until hospital discharge, and at 14days and 30days after discharge. Results: No difference was found for IRLOS, total LOS, and total inpatient cost between cohorts. Hospital LOS contributed 85.9% to the total hospitalization cost, compared with 6.4% for drug costs. Daptomycin showed a nonsignificant trend toward a higher clinical success rate, compared with vancomycin, at treatment days 2 and 3. In the multivariate analyses, vancomycin was associated with a lower likelihood of day 2 clinical success (odds ratio [OR] = 0.498, 95% confidence interval [CI], 0.249-0.997; P < 0.05). Conclusion: This study did not provide conclusive evidence of the superiority of one treatment over the other in terms of clinical, economic, or patient outcomes. The data suggest that physician and patient preference, rather than drug acquisition cost, should be the primary driver of initial antibiotic selection for hospitalized patients with cSSSI. Trial registration: ClinicalTrials.gov: NCT01419184(Date: August 16, 2011) © 2015 Kauf et al.

Kennedy AS, Ball DS, Cohen SJ, Cohn M, Coldwell D, Drooz A, Ehrenwald E, Kanani S, Rose SC, Nutting CW, Moeslein FM, **Savin MA**, Schirm S, Putnam SG, 3rd, Sharma NK and Wang EA (2015). "Safety and efficacy of radioembolization in elderly (>= 70 years) and younger patients with unresectable liver-dominant colorectal cancer." [Clinical Colorectal Cancer](#). ePub Ahead of Print.

[Full-Text](#)

Department of Diagnostic Radiology and Molecular Imaging

BACKGROUND: The effects of advancing age on clinical outcomes after radioembolization (RE) in patients with unresectable liver-dominant metastatic colorectal cancer (mCRC) are largely unknown. PATIENTS AND METHODS: This study was a retrospective analysis of 160 elderly (>= 70 years) and 446 younger (< 70 years) consecutive patients from 11 US centers who received RE using yttrium-90 (90Y) resin microspheres (90Y radioembolization [90Y-RE]) between July 2002 and December 2011. A further analysis was conducted in 98 very elderly patients (>= 75 years). Statistical analyses of safety, tolerability, and overall survival were

conducted. RESULTS: Mean ages (+/- standard deviation) in the younger (< 70 years), elderly (>= 70 years), and very elderly (>= 75 years) cohorts were 55.9 +/- 9.4 years, 77.2 +/- 4.8 years, and 80.2 +/- 3.8 years, respectively. Overall survival was similar between elderly and younger patients: 9.3 months (95% confidence interval [CI], 8.0-12.1) and 9.7 months (95% CI, 9.0-11.4) (P = .335). There were no differences between cohorts for any grade adverse events (P = .433) or grade 3+ events (P = .482). Analysis of patients >= 75 years and < 75 years confirmed similar overall survival (median, 9.3 months vs. 9.6 months, respectively; P = .987) and grade 3+ events (P = .398) or any adverse event (P = .158) within 90 days of RE. CONCLUSION: For patients with unresectable liver-dominant mCRC who meet eligibility criteria for RE, 90Y-RE microspheres appear to be effective and well-tolerated, regardless of age. Criteria for selecting patients for RE should not include age for exclusion from this potentially beneficial intervention.

Kennedy AS, Ball DS, Cohen SJ, Cohn M, Coldwell DM, Drooz A, Ehrenwald E, Kanani S, Nutting CW, Moeslein FM, Putnam SG, Rose SC, **Savin MA**, Schirm S, Sharma NK and Wang EA (2015). "Hepatic imaging response to radioembolization with yttrium-90-labeled resin microspheres for tumor progression during systemic chemotherapy in patients with colorectal liver metastases." Journal of Gastrointestinal Oncology 6(6): 594-604.

[Full-Text](#)

Department of Diagnostic Radiology and Molecular Imaging

Background: To assess response and the impact of imaging artifacts following radioembolization with yttrium-90-labeled resin microspheres (90Y-RE) based on the findings from a central independent review of patients with liver-dominant metastatic colorectal cancer (mCRC). Methods: Patients with mCRC who received 90Y-RE (SIR-Spheres® Sirtex Medical, Sydney, Australia) at nine US institutions between July 2002 and December 2011 were included in the analysis. Tumor response was assessed at baseline and 3 months using either the Response Evaluation Criteria in Solid Tumors (RECIST) version 1.0 or 1.1. For each lesion, known artifacts affecting the interpretation of response (peri-tumoral edema and necrosis) were documented. Survivals (Kaplan-Meier analyses) were compared in responders [partial response (PR)] and non-responders [stable (SD) or progressive disease (PD)]. Results: Overall, 195 patients (mean age 62 years) received 90Y-RE after a median of 2 (range, 1-6) lines of prior chemotherapy. Using RECIST 1.0 and RECIST 1.1, 7.6% and 6.9% of patients were partial responders, 47.3% and 48.1% had SD, and 55.0% and 55.0% PD, respectively. RECIST 1.0 and RECIST 1.1 showed excellent agreement (Kappa =0.915 [95% confidence interval (CI): 0.856-0.975]). Peri-tumoral edema was documented in 32.8%, necrosis in 48.1% and both in 57.3% of cases (using RECIST 1.0). Although baseline characteristics were similar in responders and non-responders (P>0.05), responders survived significantly longer in an analysis according to RECIST 1.0: PR median (95% CI) 25.2 (range, 9.2-49.4) months vs. SD 15.8 (range, 9.3-21.1) months vs. PD 7.1 (range, 6.0-9.5) months (P<0.0001). Conclusions: RECIST 1.0 and RECIST 1.1 imaging responses provide equivalent interpretations in the assessment of hepatic tumors following 90Y-RE. Radiologic lesion responses at 3 months must be interpreted with caution due to the significant proportion of patients with peri-tumoral edema and necrosis, which may lead to an under-estimation of PR/SD. Nevertheless, 3-month radiologic responses were predictive of prolonged survival.

Kerner N (2015). "Echocardiographic evaluation of aortic valve stenosis," In Abbas AE (ed). Aortic Stenosis: Case-Based Diagnosis and Therapy. New York: Springer. pp: 71-90.

[Request Form](#)

Department of Internal Medicine

Echocardiography has become the mainstay of diagnosis of patients with valvular heart disease. Its non-invasive nature, absence of side effects, and portability have rendered it a valuable tool in the diagnosis, follow up, intraoperative, post-operative evaluation of patients with severe aortic stenosis. In this chapter we will review the comprehensive role of echocardiography in the assessment of these patients. © Springer-Verlag London 2015. All rights reserved.

Khandan S and **Koh J** (2015). "Conjunctiva muller muscle resection belpharoptosis repair: Efficient, reliable and predictable." Investigative Ophthalmology and Visual Science 56(7): Ab 4744.

[Request Form](#)

Department of Ophthalmology

Kheradmand T, Ramon D, **Maine G**, Forney S, Skorupski S, Fagoaga O, Gerlach JA and Ho S (2015). "The new OPTN kidney allocation system: An early look at the transplant trend in the highly sensitized patient cohort." Human Immunology 76: 103.

[Full-Text](#)

Department of Pathology

Khourdaji I, Parke J, Chennamsetty A and **Burks F** (2015). "Treatment of urethral strictures from irradiation and other nonsurgical forms of pelvic cancer treatment." Advances in Urology 2015(476390): 1-7.

[Request Form](#)

Department of Urology

Radiation therapy (RT), external beam radiation therapy (EBRT), brachytherapy (BT), photon beam therapy (PBT), high intensity focused ultrasound (HIFU), and cryotherapy are noninvasive treatment options for pelvic malignancies and prostate cancer. Though effective in treating cancer, urethral stricture disease is an underrecognized and poorly reported sequela of these treatment modalities. Studies estimate the incidence of stricture from BT to be 1.8%, EBRT 1.7%, combined EBRT and BT 5.2%, and cryotherapy 2.5%. Radiation effects on the genitourinary system can manifest early or months to years after treatment with the onus being on the clinician to investigate and rule-out stricture disease as an underlying etiology for lower urinary tract symptoms. Obliterative endarteritis resulting in ischemia and fibrosis of the irradiated tissue complicates treatment strategies, which include urethral dilation, direct-vision internal urethrotomy (DVIU), urethral stents, and urethroplasty. Failure rates for dilation and DVIU are exceedingly high with several studies indicating that urethroplasty is the most definitive and durable treatment modality for patients with radiation-induced stricture disease. However, a detailed discussion should be offered regarding development or worsening of incontinence after treatment with urethroplasty. Further studies are required to assess the nature and treatment of cryotherapy and HIFU-induced strictures. © 2015 Iyad Khourdaji et al.

Kim S, Chen DT, Stone BM, Al-Rashdan AF, Elsaka R, Torres-Roca JF, Haura E, Dilling TJ, Robinson L and **Stevens CW** (2015). "The Lung Metastasis Risk (LMR) signature: A prognostic genomic biomarker predicting distant failure among stage i adenocarcinoma patients following local therapy." International Journal of Radiation Oncology Biology Physics 93(3): S67.

[Full-Text](#)

Department of Radiation Oncology

Purpose/Objective(s): Early-stage (T1-T2N0M0) adenocarcinoma of the lung is managed by surgery or SBRT alone. Adjuvant therapy is typically not given in this group of node-negative patients. Unfortunately, 14% to 23% fail distantly following local therapy alone. The purpose of this study was to develop a molecular signature to predict the risk for disease recurrence at the time of initial presentation, ultimately to intensify treatment with adjuvant chemotherapy or immunotherapy. Materials/Methods: Our institution has collected more than 40 000 tumor microarray databank linked to longitudinal clinical data to develop a platform for personalized medicine. We conducted a retrospective chart review of pathologic T1-T2N0 NSCLC patients in this database, and classified patients according to their recurrence pattern. Microarray data from pathologic specimens were obtained, and gene expression profiles were analyzed. Results: We identified a cohort of 143 patient treated with surgical resection. Seventy patients were without evidence of disease at least 3 years following surgery (Control cohort), 32 patients failed locally and in regional lymph nodes (Loco-regional failure cohort), and 50 patients developed distant metastasis (distant failure cohort). Of those, gene expression profiles from 80 patients were available for analysis. Forty-nine genes were identified that showed significant differences in RNA expression level between the control cohort versus distant failure cohort; however, there was no gene was associated with locoregional recurrence. This may be a reflection of adenocarcinoma histology associated with an increased risk for distant failure. We then developed the LMR

signature from the 49 genes by principal component analysis. The probability for distant failure was robustly predicted by a higher LMR score. The LMR signature was further validated in the early-stage adenocarcinoma cohort within the Director's Challenge Consortium dataset, with higher LMR score predicting worse survival outcome, which was statistically significant. Conclusion: We have identified a 49-gene LMR signature that predicts distant failure among surgically resected pT1-T2N0 adenocarcinoma of the lung. The LMR signature was validated in the Director's Challenge Consortium patient cohort. We are currently further validating the signature with extra-institutional dataset. The high-risk patients identified by the LMR signature will benefit from adjuvant chemotherapy following surgical resection or SBRT. In particular, patients treated with SBRT may further benefit from adjuvant immunotherapy exploiting abscopal effect of radiation therapy. Ultimately, the LMR signature will be tested in a prospective clinical trial.

Klein LW, Tra Y, Garratt KN, Powell W, Lopez-Cruz G, Chambers C and **Goldstein JA** (2015). "Occupational health hazards of interventional cardiologists in the current decade: Results of the 2014 SCAI membership survey." *Catheterization and Cardiovascular Interventions* 86(5): 913-924.

[Full-Text](#)

Department of Internal Medicine

Background Interventional cardiologists and staff are subject to unique physical demands that predispose them to distinct occupational health hazards not seen in other medical disciplines. Methods To characterize the prevalence of these occupational health problems, The Society for Cardiovascular Angiography and Interventions (SCAI) surveyed its members by email. Inquiries included age, years of invasive practice, and diagnostic and interventional cases per year. Questions focused on orthopedic (spine, hips, knees, and ankles) and radiation-associated problems (cataracts and cancers). Results There were 314 responses. Responders were on average busy and experienced, performing a mean of 380 ± 249 diagnostic and 200 ± 129 interventional cases annually. Of the responders, 6.9% of operators have had to limit their caseload because of radiation exposure and 9.3% have had a health-related period of absence. Furthermore, 153 (49.4%) operators reported at least one orthopedic injury: 24.7% cervical spine disease, 34.4% lumbar spine problems, and 19.6% hip, knee or ankle joint problems. Age was most significantly correlated with orthopedic illnesses: cervical injuries ($\chi^2 = 150.7$, $P < 0.0001$); hip/knee or ankle injuries ($\chi^2 = 80.9$, $P < 0.0001$); lumbar injuries ($\chi^2 = 147.0$, $P < 0.0001$); and any orthopedic illness ($\chi^2 = 241.2$, $P < 0.0001$). Annual total caseload was also associated: the estimated change in the odds of orthopedic illness for each additional total caseload quintile is 1.0013 (1.0001, 1.0026). There is a small but substantial incidence of cancer. Conclusions These findings are consistent with, and extend the findings, of a prior 2004 SCAI survey, in documenting a substantial prevalence of orthopedic complications among active interventional cardiologists, which persists despite increased awareness. © 2015 Wiley Periodicals, Inc.

Kline-Fath B, Bulas D and **Bahado-Singh R** (2015). *Fundamental and Advanced Fetal Imaging: Ultrasound and MRI*. Philadelphia, Wolters Kluwer Health Publishing.

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Department of Obstetrics and Gynecology

Koppisetty S, **Smith AG** and Dhillon RK (2015). "Incidental finding of inferior vena cava atresia presenting with deep venous thrombosis following physical exertion." *Case Rep Emerg Med* 2015(146304): 1-4.

[Full-Text](#)

Department of Diagnostic Radiology and Molecular Imaging

Inferior vena cava atresia (IVCA) is a rare but well described vascular anomaly. It is a rare risk factor for deep venous thrombosis (DVT), found in approximately 5% of cases of unprovoked lower extremity (LE) DVT in patients <30 years of age. Affected population is in the early thirties, predominantly male, often with a history of major physical exertion and presents with extensive or bilateral DVTs. Patients with IVC anomalies usually develop compensatory circulation through the collateral veins with enlarged azygous/hemizygous veins. Despite the compensatory circulation, the venous drainage of the lower limbs is often insufficient leading to venous stasis and thrombosis. We describe a case of extensive and bilateral deep venous thrombosis following physical exertion in a thirty-six-year-old male patient with incidental finding of IVCA on

imaging.

Koreckij TD and **Fischgrund JS** (2015). "Results of surgical treatment of adult degenerative spondylolisthesis," In Wollowick AL and Sarwahi V (ed). Spondylolisthesis: Diagnosis, Non-Surgical Management, and Surgical Techniques. New York: Springer. pp: 277-290.

[Request Form](#)

Department of Orthopedic Surgery

The surgical treatment of adult degenerative spondylolisthesis continues to evolve. Although controversy still exists, there are several well-designed studies in recent years that have narrowed the debate on the preferred surgical treatment. Current surgical treatment strategies range from isolated nerve root decompression or a wider central decompression to decompression and fusion with or without instrumentation. While decompression alone may be appropriate in certain patient populations, decompression with fusion has demonstrated improved clinical outcomes over decompression alone in mid to long-term follow-up. However, there is no clear consensus regarding the best way to achieve fusion. Initial attempts utilizing a posterolateral fusion without instrumentation led to poor rates of arthrodesis. The advent of instrumentation has improved fusion rates by creating a more stable environment for arthrodesis to take place. This improved fusion rate appears to have afforded improved patient satisfaction, but it is not without increased risk to the patient. Current literature is focused tremendously on techniques to further improve stability. Anterior column support as well as techniques aimed at decreasing the morbidity associated with these procedures is receiving tremendous attention as are the debates to whether or not it affords improved patient outcomes. Orthobiologics (i.e., bone morphogenetic protein) are being widely utilized to augment fusion, but the literature supporting its use has recently come into question. This chapter focuses on the current literature available in the treatment of adult degenerative spondylolisthesis. © Springer Science+Business Media New York 2015.

Krauss DJ, Martinez AA, Ye H, Wallace M, Marvin K, Ghilezan M and **Gustafson GS** (2015). "Highly favorable preliminary clinical and toxicity outcomes for low-and intermediate-risk prostate cancer patients treated with high-dose-rate brachytherapy in a single fraction of 19 Gy." International Journal of Radiation Oncology Biology Physics 93(3): S122.

[Full-Text](#)

Department of Radiation Oncology

Purpose/Objective(s): Interstitial high-dose-rate (HDR) brachytherapy has become a standard management option for localized prostate cancer. It is typically delivered in 2 to 6 treatment fractions, either through a single or often multiple procedures. Minimization of the number of treatment fractions is an opportunity to reduce cost, inconvenience, and risk associated with definitive therapy. We report preliminary outcomes of patients who completed definitive local therapy for their prostate cancer using single-fraction HDR brachytherapy. Materials/Methods: Sixty-three patients were treated according to an institutional review board-approved prospective study of single-fraction HDR brachytherapy. All patients had low- or intermediate-risk prostate cancer defined as tumor stage \leq T2a, PSA $<$ 15, and Gleason score \leq 7. Patients with prostate volume $>$ 50 cc and baseline American Urologic Association symptom score $>$ 12 were ineligible. Patients underwent transrectal ultrasound (TRUS)-guided interstitial implant of the prostate followed by single-fraction HDR brachytherapy. Treatment was delivered via iridium-192 to a dose of 19 Gy prescribed to the prostate with no additional margin applied. Dose planning was TRUS-based with constraints as follows: prostate V100 $>$ 95%, urethral V110 $<$ 10%; and rectal Dmax $<$ 72.5% of the prescription dose. Results: Fifty-eight patients were available for analysis (5 withdrew study consent). Median follow-up was 2.1 years (range, 0.2-4.0 years). Median age was 61.4 years. Median gland volume was 34.8 cc. Ninety-one percent of the patients had T1 disease, 71% had a Gleason score 6 (29% Gleason 7), and median pretreatment PSA was 5.1 ng/mL. Incidence of acute and chronic grade 2 genitourinary toxicity was 12.1% and 13.8%, respectively. No grade 3 urinary toxicity occurred. Only a single patient experienced grade \geq 2 rectal toxicity (grade 3 diarrhea). Two patients experienced biochemical failure yielding a 3-year cumulative incidence estimate of 6%. One of 2 patients who failed experienced pure local failure confirmed on repeat biopsy, and the second remains without evidence of clinically recurrent disease (including negative repeat

prostate biopsy). No distant metastasis or overall/cause-specific survival events have occurred during the follow-up period. Conclusion: Single-fraction HDR brachytherapy is a well-tolerated treatment option for men with localized low- and intermediate-risk prostate cancer with favorable preliminary biochemical and clinical disease control rates. Future direction should include prospective evaluation to determine optimal HDR dosing and fractionation regimens.

Kuang S (2015). "Fostering inclusive education: Intentionally vs. spontaneously." FASEB Journal 29(Sup 1): 541.546.
[Full-Text](#)
Department of Biomedical Sciences (OU)

Kulkarni N, Xi A and Hankin M (2015). "Concept mapping of anatomy dissection." FASEB Journal 29(Sup 1): 549.541.
[Full-Text](#)
OUWB Medical Student Author

Kumar T, **Zhang P** and **Fennell T** (2015). "18 Months is a reliable period for storing Immunofluorescent (IF) slides of renal biopsies for review in room temperature (70 degrees F)." American Journal of Clinical Pathology 144(Sup 2): A356.
[Request Form](#)
Department of Pathology

Kuske RR, Kamrava M, **Chen PY**, Hayes JK, Anderson BM, Quiet CA, Wang J, Veruttipong D, Snyder M and Demanes DJ (2015). "Short and long-term toxicity and cosmesis after interstitial multicatheter brachytherapy for accelerated partial-breast irradiation: A multi-institutional study." International Journal of Radiation Oncology Biology Physics 93(3): S60.
[Full-Text](#)
Department of Radiation Oncology

Purpose/Objective(s): To report toxicity and cosmesis outcomes after multicatheter interstitial brachytherapy (MIB) for accelerated partialbreast irradiation (APBI) for select breast cancers after breast conserving surgery (BCS) by a cooperative group of institutions. Single entry brachytherapy device results have been reported, but this is the first report with a large cohort of patients treated by MIB. Materials/Methods: Five institutions with extensive experience in treating select breast cancers with MIB contributed their experience to this retrospective clinical study. From March 1997 to August 2013, 1,372 patients with Stage Tis, T1-2, N0, and N1 (<3 positive nodes without extracapsular extension) underwent BCS with clear margins and pathologic size <3 cm, followed by APBI using interstitial multicatheter brachytherapy. All patients who had documentation of toxicity and cosmesis comprise this report, with 800 in the cosmesis evaluation alone. Mean age was 60.4 +/- 10.8 years. All patients received 32-34 Gy in 8-10 fractions over 4-5 days with high-dose-rate or 45 Gy over 3-5 days low-dose-rate Iridium-192 seeds. One hundred thirty-five patients (17.1%) received chemotherapy and 503 (68.7%) endocrine therapy. Cosmesis, toxicities, and subsequent mastectomy rates (MR) were evaluated at yearly intervals. Results: The overall median follow-up was 82 months (range, 1-245 months); however, the median follow-up for the assessment of toxicities was 48 months. For cosmesis, 612 of the 800 patients had at least 2 years of follow-up. Only 79 had follow-up of 1 year or less. Subsequent mastectomy rates were 0% (<1 year), 1% (1-2 years), 2% (2-5 years), and 2% (>6 years). Results are given in the Table below. Conclusion: This cooperative multi-institutional study is the largest published report of toxicity and cosmetic outcomes of patients treated by MIB. This radiation therapy method to complete breast conserving therapy was associated with excellent cosmetic outcomes and low-toxicity rates that change over time but remain acceptable beyond 5 years. (Table Presented).

LaBan MM (2015). "Re: Brevue of secondary health conditions in post-polio syndrome" by McNalley TE, Jenson MP, Truitt AR, Schomer KG, Baylor C, Molton IR: *Am j Phys Med Rehabil* 2015; 94:139-45." [American Journal of Physical Medicine and Rehabilitation](#) 94(10): e92.

[Full-Text](#)

Department of Physical Medicine and Rehabilitation

Lanni Jr T, Tonlaar NY, Parslow J, Maxon E, Marvin K, **Krauss DJ, Chen PY** and **Akervall J** (2015). "Development of a weekly nutrition clinic for head and neck cancer patients: Does it make a difference?" [International Journal of Radiation Oncology Biology Physics](#) 93(3): E488.

[Full-Text](#)

Department of Radiation Oncology

Department of Biomedical Sciences (BHS)

Purpose/Objective(s): To evaluate the initial outcomes and cost effectiveness of a weekly nutrition clinic for head and neck cancer patients receiving concomitant chemotherapy and radiation therapy.

Materials/Methods: In a retrospective study of 193 patients receiving chemoradiation for advanced head and neck cancer, 38% were hospitalized due to dehydration/malnutrition despite 83% having a PEG tube. In this study, we investigated whether a weekly nutrition clinic could reduce this and other treatment-induced complications. A nutrition panel and patient weights were monitored weekly in addition to evaluation of tolerance to tube feeding and compliance with the recommended tube feeding regimen. Patients were prospectively monitored and data on hospitalization rates due to dehydration and malnutrition, treatment interruption, and PEG tube complications were collected. Results: Thirty-eight patients have been enrolled in the nutrition clinic, in which 27 received concurrent chemoradiation. Of these, 21 had a PEG tube placed, 19 prophylactically and 2 reactively. The average cost of PEG tube placement and hospitalization was \$8,089 compared to \$4,848 with the prophylactic approach or no PEG tube placement. Follow-up showed a decrease in hospitalization due to dehydration and malnutrition from 38% in our published retrospective cohort to 11% in this prospective cohort. Length of hospital stays was significantly shorter for the patients in the nutrition clinic cohort (median 4 days) compared with patients from the retrospective study (median hospital stay 7 days). Direct cost per day for an inpatient admission for a nutrition clinic patient was \$1,612, which was an approximate savings of \$4,836 compared to the retrospective cohort. No interruptions to treatment in radiation oncology were observed as well. Conclusion: The weekly nutrition clinic has resulted in lower rates of hospitalization secondary to dehydration and/or malnutrition for patients enrolled compared to the retrospectively analyzed cohort. This led to fewer hospitalizations, and those that did occur were shorter, lower direct cost and no radiation therapy treatment interruptions were encountered with a pro-active nutrition clinic.

Lanni TB, Jr., **Stevens C, Farah M, Boyer A**, Davis J, **Welsh R, Keena D, Akhtar A** and **Mezwa D** (2015). "Early results from the implementation of a lung cancer screening program: The Beaumont Health System experience." [American Journal of Clinical Oncology: Cancer Clinical Trials](#). ePub Ahead of Print.

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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. Copyright © 2015 Wolters Kluwer Health, Inc. All rights reserved.

LaRouere M (2015). "General considerations in otologic and neurotologic surgery," In Larouere MJ, Babu SC and Bojrab DI (ed). Surgical Techniques in Otolaryngology-Head and Neck Surgery: Otologic and Neurotologic Surgery. Daryaganj: Jaypee Brothers Medical Pub. pp: 1-3.

[Request Form](#)

Department of Surgery

LaRouere M and Benscoter B (2015). "Surgery for Neoplasms of the Posterior Fossa and Skull Base," In Larouere MJ, Babu SC and Bojrab DI (ed). Surgical techniques in otolaryngology-head and neck surgery: Otologic and neurotologic surgery. Daryaganj: Jaypee Brothers Medical Pub. pp: 131-147.

[Request Form](#)

Department of Surgery

LaRouere M and Sdrulla D (2015). "Encephaloceles and related CSF leaks," In Larouere MJ, Babu SC and Bojrab DI (ed). Surgical Techniques in Otolaryngology-Head and Neck Surgery: Otologic and Neurotologic Surgery. Daryaganj: Jaypee Brothers Medical Pub. pp: 179-188.

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Department of Surgery

Latifi K, Dilling TJ, Feygelman V, Moros EG, **Stevens CW**, Montilla-Soler JL and Zhang GG (2015). "Impact of dose on lung ventilation change calculated from 4D-CT using deformable image registration in lung cancer patients treated with SBRT." Journal of Radiation Oncology 4(3): 265-270.

[Request Form](#)

Department of Radiation Oncology

Objectives: Ventilation derived from four-dimensional computerized tomography (4D-CT) using deformable image registration (DIR) has been found to correlate with xenon-enhanced CT ventilation. How radiation dose affects ventilation after stereotactic body radiotherapy (SBRT) is not well understood. In this paper, 4D-CT-derived lung ventilation maps and 3D radiation dose distributions were investigated. Methods: Diffeomorphic morphons were used as the DIR tool. A total of 31 SBRT lung cancer patients' tidal volume normalized ventilation and planning dose data were retrospectively analyzed. All patients had two sets of 4D-CT, one at pre-treatment and one post-treatment from which ventilation distributions were calculated. The two ventilation data sets per patient were aligned using DIR. Radiation dose distributions were resampled to match the resolution of CT images. A ventilation change and dose values were thus associated to each voxel of the CT images. A function (ventilation change)-dose-volume surface was generated for each case. Results: Average ventilation was found degraded in higher than 20 Gy dose regions for 25 out of the 31 cases. The ventilation degradation was statistically significant for the dose regions of greater than 20 Gy outside the tumor volume compared to the lower dose regions ($p < 0.05$). Conclusions: This suggests that 4D-CT-derived ventilation maps can be used in treatment planning to spare functional lung volumes.

Lee KC, Wobb JL, Wallace M, **Grills IS** and **Chen PY** (2015). "Accelerated partial-breast irradiation (APBI) provides equivalent 5 year and 10 year outcomes regardless of molecular subtype." International Journal of Radiation Oncology Biology Physics 93(3): E39.

[Full-Text](#)

Department of Radiation Oncology

Purpose/Objective(s): APBI is an accepted approach for selected patients with early stage breast cancer. Current ASTRO consensus guidelines for suitability include receptor status as a significant determinant. However, the impact of molecular subtype is not well defined. This study compares outcomes based on molecular subtypes in patients treated with APBI. Materials/Methods: A total of 474 patients were treated with APBI (n=57 interstitial, n=247 applicator-based, n=170 3D conformal) at a single institution between 1980 and 2012 who had documented estrogen (ER), progesterone (PR), and Her2 receptor status. Luminal A (Lum A) was defined as ER or PR positive, grade 1/2, and Her2-neu negative. Luminal B (Lum B) was defined as ER or PR positive, grade 3, and Her2-neu negative. Her2 type was defined as ER/PR negative, Her2-neu positive. Local recurrence (LR), true recurrence/marginal miss (TRMM), elsewhere failure, distant metastases (DM), disease-free survival (DFS), cause-specific survival (CSS) and overall survival (OS) were calculated using the Kaplan-Meier method. Results: Median follow-up was 5.9 years (0.1-18.8) for the entire cohort (Lum A 5.9, Lum B 6.0, triple negative (TN) 5.7, Her2 6.1, and triple positive (TP) 7.4 years, $p = 0.35$). Median age was not significantly different between groups (Lum A 64, Lum B 70, TN 64, Her2 61, and TP 68 years, respectively; $p = 0.28$), although use of endocrine therapy (Lum A 75%, Lum B 68%, TN 12%, Her2 0%, and TP 80%; $p < 0.001$) and chemotherapy (Lum A 13%, Lum B 19%, TN 57%, Her2 57%, and TP 28%; $p < 0.001$) differed. The table demonstrates 5- and 10-year clinical outcomes between groups. Conclusion: These data demonstrate no differences between LR, TRMM, elsewhere, DM, DFS, or CSS. Statistical significance seen for RR and OS were likely a result of relatively low patient numbers and events in the Her2 Type cohort. These outcomes for APBI are quite comparable across all molecular subtypes, with the caveat that Her2 positive patients were limited. (Table Presented).

Linnstaedt SD, Bortsov AV, Soward AC, **Swor R**, Peak DA, Jones J, Rathlev N, Lee DC, Domeier R, Hendry PL and McLean SA (2015). "CRHBP polymorphisms predict chronic pain development following motor vehicle collision." Pain 157(1): 273-279.

[Full-Text](#)

Department of Emergency Medicine

Musculoskeletal pain (MSP) is a common sequela of traumatic stress exposure. While biological factors contributing to chronic MSP after motor vehicle collision (MVC) have traditionally focused on tissue injury, increasing evidence suggests that neuro/stress/immune processes mediated by stress system activation may play a more dominant role. In a previous study, we found that genetic variants in the hypothalamic-pituitary-adrenal (HPA) axis-related gene FKBP5 influence vulnerability to persistent MSP 6 weeks after MVC. In the present cohort study (n 855), we evaluated whether genetic variants in several other important HPA axis-related genes, including the glucocorticoid receptor (NR3C1), corticotropin-releasing hormone receptor R1 (CRHR1), and corticotropin-releasing hormone-binding protein (CRHBP), influence risk of chronic MSP over time after MVC. Genetic polymorphism rs7718461 in the CRHBP gene showed significant association ($P 0.0012$) with overall pain severity during the year after MVC in regression models controlling for multiple comparisons. Two additional CRHBP alleles in high linkage disequilibrium with rs7718461 also showed trend-level significance. In secondary analyses, a significant interaction between this CRHBP locus (minor allele frequency 0.33) and time was observed ($P 0.015$), with increasing effect observed over time following trauma. A significant CRHBP \times FKBP5 interaction was also observed, with substantially increased MSP after MVC in those with a risk allele in both genes compared with either gene alone. The results of this study indicate that genetic variants in 2 different HPA axis genes predict chronic MSP severity following MVC and support the hypothesis that the HPA axis is involved in chronic post-MVC MSP pathogenesis. © 2015 International Association for the Study of Pain.

Linnstaedt SD, Walker MG, Parker JS, Yeh E, Sons RL, Zimny E, Lewandowski C, Hendry PL, Damiron K, Pearson C, Velilla MA, O'Neil BJ, Jones J, **Swor R**, Domeier R, Hammond S and McLean SA (2015). "MicroRNA circulating in the early aftermath of motor vehicle collision predict persistent pain development and suggest a role for microRNA in sex-specific pain differences." *Molecular Pain* 11(1): 1-11.

[Full-Text](#)

Department of Emergency Medicine

Background: Molecular mediators influencing the transition from acute to persistent musculoskeletal pain following common stress exposures such as motor vehicle collision (MVC) remain poorly understood. In this exploratory, proof of concept study, we compared circulating microRNA (miRNA) expression profiles in the early aftermath of MVC among individuals who did and did not subsequently develop persistent pain. Blood RNA samples were obtained from African American individuals (n=53) who presented to the emergency department after MVC and were discharged to home after evaluation. The presence or absence of severe pain in the axial region, the most common and morbid region in which post-MVC pain occurs, was assessed 6weeks following MVC via standardized questionnaire. miRNA expression was determined using miRNA-sequencing; nonparametric analyses were used to compare miRNA expression levels among individuals with and without persistent pain. Results: Thirty-two mature miRNA were differentially expressed ($p < 0.05$) in those with and without severe axial pain at 6weeks. miR-135a-5p, a regulator of the serotonin receptor that is known to be stress-responsive, differed most significantly between groups ($p = 3 \times 10^{-4}$). This miRNA, and miR-3613-3p ($p = 0.001$) survived correction for multiple testing (FDR=0.15) in this small sample. Interestingly, differentially expressed miRNA were enriched for X chromosome location. In secondary analyses, the eight X chromosome miRNA were (a) more significantly associated with axial pain in women than men, (b) expressed more highly in the peripheral blood of women than men, and (c) predicted in pathway analyses (DIANA miRPath v 2.0) to regulate neuronal and neuroendocrine pathways previously implicated in various pain pathologies. Conclusions: These results show that circulating miRNA predict persistent severe axial pain after MVC and suggest that they may be involved in the pathogenesis of post-traumatic musculoskeletal pain. However, further studies are needed to determine if these miRNA play a direct causal role. © 2015 Linnstaedt et al.

Liu J and **Zhang P** (2015). "Positive stain for CD133 but negative stain for Kidney Injury Molecule-1 (KIM-1) distinguish Clear Cell Papillary Renal Cell Carcinoma (CCP-RCC) from conventional clear cell renal cell carcinoma." *American Journal of Clinical Pathology* 144: A394.

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Department of Pathology

Loftus S (2015). "Understanding integration in medical education." *Medical Science Educator* 25(3): 357-360.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Mack MJ and **Abbas AE** (2015). "Risk prediction models, guidelines, special populations, and outcomes," In Abbas AE (ed). *Aortic Stenosis: Case-Based Diagnosis and Therapy*. New York: Springer. pp: 171-196.

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Department of Internal Medicine

This chapter will discuss risk prediction models for aortic valve replacement, review of the most recent guidelines regarding aortic stenosis, specific patient populations with aortic stenosis, and the valve academic research consortium (VARC) consensus regarding standardized endpoint definitions for transcatheter aortic valve replacement (TAVR). © Springer-Verlag London 2015. All rights reserved.

Madan I, Ogunyemi D, Nowakowski A and Boura J (2015). "Demographic, dietary, biometric and hormonal correlates of currently pregnant women in the National Health And Nutrition Examination Survey (NHANES)." International Journal of Gynecology and Obstetrics 131: E363.

[Request Form](#)

Department of Obstetrics and Gynecology

Department of Biomedical Sciences (BHS)

Objectives: To evaluate associations of pregnant women with demographic factors, dietary intake patterns, and select biometric, cardiovascular and hormonal factors. Method: This cross-section study used data from the National Health and Nutrition Examination Survey for the years 2000-2010, which included 661 pregnant and 3514 not pregnant women. The database included all dietary intakes, vitamin intakes (A,B1, B12, B6, Folate, niacin, C, E, K), trace metal intakes (calcium, phosphorus, magnesium, zinc, iron, selenium, copper, potassium), alcohol, caffeine, and theobromine intakes. HOMA IR (insulin resistance) was calculated. Categorical variables were analyzed using Pearsons Chi-square tests. Continuous variables were examined using Wilcoxon rank sum tests. Results: Pregnant women compared to non-pregnant women were younger, nonsmokers, had lower blood pressures, smaller households, lower income, more likely married, less likely black ethnicity; had smaller measurements of skin fold and arm circumference; larger waist circumference; no difference in BMI. Pregnant women had 24% increase in caloric intake, consuming more lipids, sugars, protein, fiber, vitamins and trace minerals, but lower intake of caffeine and alcohol. They had significantly lower plasma glucose levels with no significant differences in glucose or HOMA IR. Free T4 and free T3 were lower in pregnant women with no difference in TSH and TPO antibodies. Conclusions: The findings demonstrate a distinct demographic profile in pregnancy with lower blood pressures and lower free thyroid hormone levels. The nutrition findings suggest that pregnant women eat more and have a better nutritional intake. The biometric profile may suggest differences in adipose deposits in pregnancy.

Maerz T, Kurdziel M, Newton MD, Altman P, Anderson K, Matthew HWT and Baker KC (2015). "Subchondral and epiphyseal bone remodeling following surgical transection and noninvasive rupture of the anterior cruciate ligament as models of post-traumatic osteoarthritis." Osteoarthritis and Cartilage. ePub Ahead of Print.

[Full-Text](#)

Department of Surgery

Department of Orthopedic Surgery

Objective: Animal models are frequently used to study post-traumatic osteoarthritis (PTOA). A common anterior cruciate ligament (ACL) injury model is surgical transection, which may introduce confounding factors from surgery. Noninvasive models could model human injury more closely. The purpose of this study was to compare subchondral and epiphyseal trabecular bone remodeling after surgical transection and noninvasive rupture of the ACL. Methods: Thirty-six rats were randomized to an uninjured control, surgical transection (Transection), or noninvasive rupture (Rupture). Animals were randomized to 4 or 10 week time points (n = 6 per group). Micro computed tomography (μ CT) imaging was performed with an isotropic voxel size of 12 μ m. Subchondral and epiphyseal bone was segmented semi-automatically, and morphometric analysis was performed. Results: Transection caused a greater decrease in subchondral bone volume fraction (BV/TV) than Rupture in the femur and tibia. Rupture had greater subchondral bone tissue mineral density (TMD) at 4 and 10 weeks in the femur and tibia. Subchondral bone thickness (SCB.Th) was decreased in the femur in Transection only. Epiphyseal BV/TV was decreased in Transection only, and Rupture exhibited increased femoral epiphyseal TMD compared to both Control and Transection. Rupture exhibited greater femoral epiphyseal trabecular thickness (Tb.Th.) compared to Control and Transection at 4 weeks, and both Rupture and Transection had increased femoral epiphyseal Tb.Th. at 10 weeks. Epiphyseal trabecular number (Tb.N) was decreased in both injury groups at both time points. Femoral and tibial epiphyseal structure model index (SMI) increased in both groups. Conclusions: The two injury models cause differences in post-injury bone morphometry, and surgical transection may be introducing confounding factors that affect downstream bony remodeling. © 2015 Osteoarthritis Research Society International.

Maisels MJ, Coffey MP and Kring E (2015). "Transcutaneous bilirubin levels in newborns <35 weeks' gestation." Journal of Perinatology 35(9): 739-744.

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Department of Pediatrics

Objective: In infants <35 weeks' gestation, we sought to define the transcutaneous bilirubin (TcB) levels at which a total serum bilirubin (TSB) level suggesting the need for phototherapy is unlikely to occur and a TSB measurement can, therefore, be avoided. Study Design: Nursing staff performed 896 TcB measurements within 1 h of a TSB on 225 neonates 26 0/7-34 6/7 weeks' postmenstrual age (PMA). Generalized linear models were fit with generalized estimating equations (GEEs) to model the probability of having a TSB level at or above the phototherapy initiation cutpoint as a function of the TcB; these methods allow for multiple tests per infant. Results: The mean difference between TcB and TSB measurements was <1 mg dl⁻¹ for each PMA category. When the TcB was at least 3 mg dl⁻¹ below the TSB cutpoint for phototherapy, there was a ≥98% probability that the TSB was not at, or above, the recommended phototherapy level. The single exception to this was a phototherapy level of 6 mg dl⁻¹ for infants of 28 0/7-29 6/7 weeks' PMA, where a TcB of 4 mg dl⁻¹ below the phototherapy level (ie a TcB ≤2 mg dl⁻¹) was necessary to achieve ≥98% probability. Conclusion: Our data support the use of routine TcB screening for infants 28-34 6/7 weeks' gestation. TcB screening in the neonatal intensive care unit can identify infants who require a TSB to confirm or exclude the need for phototherapy. © 2015 Nature America, Inc.

Manickam P, Mogrovejo E and **Cappell MS** (2015). "Oseltamivir-induced acute hemorrhagic colitis." Minerva Gastroenterologica e Dietologica 61(4): 299-301.

[Request Form](#)

Department of Internal Medicine

Marples B, McGee M, Callan S, Bowen SE, Thibodeau BJ, **Michael DB**, **Wilson GD**, **Maddens ME**, **Fontanesi J** and Martinez AA (2015). "Cranial irradiation significantly reduces beta amyloid plaques in the brain and improves cognition in a murine model of Alzheimer's Disease (AD)." Radiotherapy and Oncology. ePub Ahead of Print.

[Full-Text](#)

Department of Radiation Oncology

Department of Neurosurgery

Department of Internal Medicine

Background and purpose: To investigate if cranial X-irradiation reduces amyloid- β (A β) plaques and influences cognitive function in a transgenic mouse model of AD. Methods and materials: B6.Cg-Tg (APP^{swe}PSEN1^{dE9})85Dbo/J AD-prone mice were given cranial X-irradiation. The number of A β plaques, along with expression of AD specific genes (84 genes: Mouse Alzheimer's Disease RT2 Profiler™), radiation-associated cytokines (Milliplex® MAP Mouse Cytokine Chemokine Immunoassay) and immunohistochemistry (IL10, IL-1 β , Iba1 CD45) was assessed. Behavioral testing was performed to relate changes in A β burden to cognitive function using a Morris water-maze task. Results: Single X-ray doses reduced the number (p=0.002) and size (p=0.01) of A β plaques. Low-dose fractionation produced greater 50.6% (1. Gy. \times . 10), 72% (2. Gy. \times . 5) and 78% (2. Gy. \times . 10) reductions. Irradiation was associated with gene (Pkp4, 1.5-fold, p=0.004) and proteomic (MIP-2, 8-fold, p=0.0024) changes at 24-48. h. Microglia increased at 4. weeks post-irradiation (p=0.001). The reduction in A β burden (2. Gy. \times . 5) was associated with cognitive improvement (p=0.012). Conclusion: This is the first report that a clinically relevant course of external beam irradiation (2. Gy. \times . 5) produces a significant reduction in AD-associated amyloid- β plaques with a subsequent improvement in cognitive function. However, longer-term studies are needed to define the precise underlying mechanism and longevity of this response. © 2015 Elsevier Ireland Ltd.

Marples B, Wilson TG, Dabjan MB, Kane J, **Wilson GD** and **Krueger SA** (2015). "Evaluating the efficacy of pulsed radiation therapy in a subcutaneous murine model of glioblastoma." [International Journal of Radiation Oncology Biology Physics](#) 93(3): E526.

[Full-Text](#)

Department of Radiation Oncology

Purpose/Objective(s): Glioblastoma multiforme (GBM) is a locally aggressive radioresistant brain tumor with poor prognosis. Using a preclinical intracranial murine model of GBM, we previously demonstrated that pulsed-radiation therapy (PRT; 10 pulses of 0.2 Gy with a 3 min pulse interval, 2 Gy/day, 10 Gy/wk, 4 wks) was more effective at controlling tumor growth than the same dose given continuously by standard radiation therapy (SRT; 2 Gy/day, 10 Gy/wk, 4 wks). The efficacy of PRT was attributed to the preservation of tumor vascularity and decreased tumor hypoxia. The aim of the current study was to determine the significance of the PRT interval with respect to tumor control, examine the efficacy of a combined PRT+SRT regimen, and determine the response of normal tissues. Materials/Methods: Clonogenic survival of U87MG, U373, and T98G GBM cells was measured in vitro after SRT, PRT, and continuous lowdose- rate irradiation (LDR, 2Gy, given over same protracted time as PRT). γ H2AX and histone H3P were measured to evaluate damage response. Subcutaneous U87MG GBM xenografts were established in female Nu/nu mice. At 200-300 mm³, tumors were treated with sub-curative 40 Gy total dose (2 Gy/day) via SRT or PRT, or combined 20 Gy PRT+20 Gy SRT. 18F-FMISO PET/CT scans were acquired pre-and post-treatment using a trimodality system to evaluate tumor hypoxia. The tumor SUVmax for each scan was calculated and normalized to pre-treatment values. Normal tissue effects were evaluated in the RT field and in contralateral skin and gut. Animal experiments were conducted with the approval and oversight of Institutional IACUC. Results: Clonogenic survival in vitro was similar for PRT vs SRT (for U373, T98G, and U87MG). However, LDR was statistically less effective than PRT for T89G (p=0.006) and U87MG (p=0.008) cells indicating the significance of the pulse interval. Tumor regrowth rate after PRT (24.7mm³/d \pm 27d), SRT (75.5 mm³/d \pm 31.1) and PRT+SRT (47.8mm³/d \pm 53.8) were statistically indistinguishable, but showed a trend for improved tumor response after only PRT during regrowth. Histological analysis of pimonidazole stained tumors mimicked 18FMISO imaging data reflecting low levels of hypoxia in all treatments arms. Initial qualitative analysis indicates similar normal tissues effects after PRT and SRT. Quantitative histological studies examining vascular markers are ongoing. Conclusion: The in vitro data demonstrate the 3 minute inter-pulse interval is important for PRT efficacy. The effectiveness of PRT on tumor control seen in our previous intracranial GBM study was not replicated in this subcutaneous GBM study. The imaging and pathology data indicate the disparate tumor response outcomes likely reflect tumor implant location.

Mendoza S and **Cappell MS** (2015). "A quantitatively large and highly statistically significant correlation between hypertension and colonic diverticulosis: Proposed pathophysiology and clinical significance." [American Journal of Gastroenterology](#) 110(Sup 1): S560.

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OUWB Medical Student Author

Department of Internal Medicine

Introduction: Colonic diverticuli are clinically important because they can cause diverticulitis or diverticular bleeding. Their etiology is incompletely understood. Diverticuli occur at points of weakness in the bowel wall where vasa recta penetrate the colonic circular muscle layer. It is hypothesized that diverticuli form from increased intraluminal pressure generated by exaggerated segmental contractions possibly from abnormal neural patterns or abnormal motility. Structural colonic wall abnormalities of collagen or elastin may also contribute to the pathogenesis. Methods: Retrospective review of 285 medical records from consecutive patients undergoing surveillance colonoscopy from January-May, 2013 and August-December, 2014 at an academic university teaching hospital. Demographic/clinical data included age, gender, BMI, hypertension, diabetes, coronary artery disease, smoking history, alcohol use, polyps, dyslipidemia, hemorrhoids, and colonoscopy indication. Correlations between these factors and presence of diverticular disease were assessed. Results: Mean age of population=65.7 \pm 10.0 years. Average BMI=28.81 \pm 5.09 kg/m². Hypertension and age were statistically significant risk factors for diverticuli (Table 1) (p < .0001, p=.02, respectively). Number of polyps was also correlated with diverticuli, p=0.003. Other analyzed parameters

were not risk factors for colonic diverticuli. Conclusion: This study shows a quantitatively strong and highly statistically significant correlation between hypertension and colonic diverticulosis that suggests that hypertension may play an important etiologic role in diverticulosis. We propose that, in patients with hypertension, bounding pulsations leads to weakening of the adventitia surrounding the vasa recta. Thus, due to the chronic wear and tear, permitting herniation of the mucosa immediately adjacent to the vasa recta. Age may be an etiologic factor due to prolonged exposure to hypertension damage creating a greater wear and tear. If this hypothesis is correct, patients with hypertension could benefit from blood pressure control, not only to prevent cardiovascular disease, but also, to prevent colonic diverticulosis. A previous study reported this correlation of hypertension with diverticulosis (Azzam et al., 2013) but did not propose a pathophysiology for this phenomena. (Table presented).

Mendoza S, Nojkov B and Cappell MS (2015). "Endoscopists do not exhibit economic discrimination in scheduling earlier surveillance colonoscopy based on higher insurance payments: A study of 136 consecutive surveillance colonoscopies at William Beaumont Hospital." [American Journal of Gastroenterology](#) 110(Sup 1): S561.

[Request Form](#)

OUWB Medical Student Author

Department of Internal Medicine

Introduction: Colorectal cancer (CRC) is the third most common cancer in the United States. Colonoscopy is the standard procedure for screening and surveillance of CRC to decrease its mortality. This study aims to identify relationships between clinico-epidemiologic factors and colonoscopy surveillance intervals. Methods: Retrospective review of 136 consecutive surveillance colonoscopies, August-December 2014, at a university teaching hospital. Demographic information included: race; gender; age; BMI; time interval between index colonoscopy and immediately prior colonoscopy; colonoscopy indication; insurance; polyp number, size, location, and histology; endoscopist subspecialty; and comorbidities including hypertension, diabetes, and hyperlipidemia. Relation between these parameters and time intervals between colonoscopies were analyzed. Results: Mean age=66.6 ± 9.4 years [females=34.6%, Caucasian=68%]. Mean BMI=28.3 ± 5.9 kg/m². Common indications for surveillance colonoscopy included prior adenomatous polyps-53.7% and high risk colon cancer surveillance 25.7%. Polyps at prior colonoscopy were most frequently located in ascending colon-19% and transverse colon-16.9%. Tubular adenoma was present-69.6% with interval=34.5 ± 13.1 months, and hyperplastic polyp was present in-6.4%, with interval=29.5 ± 16.6 months. Common primary insurances: Medicare-41.2%, Blue Cross-30.1% (coinsured with both=13%). Insurance status did not predict time interval between colonoscopies: mean interval between colonoscopies for Medicare=31.4± 14.5 months, for Blue Cross/Blue Shield with or without Medicare=35.3 ± 15.1, and for other HMO insurance=27.2 ± 16.5 months (p>0.05). Provider subspecialty also did not correlate with time interval between colonoscopies. Mean interval for colonoscopies by colorectal surgeons=32.9 ± 14.5 months versus colonoscopies by gastroenterologists=35.6 ± 21.1 months. Polyp number and size were both significantly negatively correlated with interval between colonoscopies (p < 0.05). Conclusion: Time interval between colonoscopies did not correlate with insurance or endoscopist specialty. Physicians did not demonstrate economic discrimination in accelerating colonoscopy surveillance in patients with better-paying insurance. Polyp number and size were as expected negatively correlated with time interval between colonoscopies, since larger or more polyps increase risk of malignancy and urgency of performing surveillance.

Meyer K, **Krueger SA, Wilson GD**, Wobb JL, **Grills IS**, Galoforo S and **Marples B** (2015). "Overcoming the radioresistance of HNSCC tumors: Tumor vasculature and drug delivery." [International Journal of Radiation Oncology Biology Physics](#) 93(3): E526-E527.

[Full-Text](#)

Department of Radiation Oncology

Purpose/Objective(s): While concurrent chemoradiation provides excellent control for favorable head and neck squamous cell carcinomas (HNSCC), high risk patients continue to have a high rate of local failure. We investigated pulsed radiation therapy (PRT), a novel approach to overcome tumor resistance in HNSCC. PRT gives a standard daily dose of radiation (2 Gy) in ten pulses of 0.2 Gy each separated by 3 minutes. PRT capitalizes on low dose hyper-radiosensitivity in which DNA damage induced by doses < 0.25 Gy is

insufficient to trigger the ATM dependent G2-phase cell cycle checkpoint and DNA damage response. Our previous research has demonstrated that PRT results in preservation of tumor vascularity; we hypothesized that improved vascularity will allow better drug delivery during concurrent cisplatin (CDDP)-based chemoradiation to improve outcomes in a preclinical model. Materials/Methods: MTT assays were performed using low passage UT14 and UT15 HNSCC cell lines with SRT and PRT with or without 0.25 or 0.5 uM CDDP. 10 Gy was given in five daily fractions. CDDP was applied for 24 hours immediately prior to the second fraction of RT. Reported values were normalized to SRT alone. NIH HO mice were injected with 10⁶ UT14 cells into the right flank. When tumors reached an average volume of 200 cc, they were PET/CT imaged using 18FMISO. Animals were randomized to no RT, SRT, or PRT and either CDDP (2 mg/kg IP three times per week) or sham (n=6/gp). Both RT arms delivered 30 Gy in 15 fractions, 5 fractions per week. CDDP was started on the second week of treatment 30 minutes prior to RT. After the completion of treatment animals, will be reimaged with 18FMISO. Tumor will then be allowed to regrow until they exceed 2000 cc or demonstrate complete cure. Results: MTT assay did not reveal a significant difference in cytotoxicity between SRT and PRT in UT14 cells without (1.0 vs 0.93) or with 0.25 uM CDDP (0.76 vs 0.63) or in UT15 cells without (1.0 vs 1.1) or with 0.5 uM CDDP (0.44 vs 0.52) but defined optimum CDDP dosing. In vivo studies were then performed using UT14 subcutaneous xenografts treated with 3 weeks of SRT or PRT and 2 weeks CDDP via IP. Preliminary data showed a growth delay with cisplatin compared to control animals (51 vs 29 mm³ / day, p = 0.048). Animal weight showed no adverse effects of CDDP. Comparing SRT and PRT for tumor response shows a qualitative superiority of PRT compared to SRT both with and without CDDP. Full statistical analysis is pending complete regrowth data. Qualitative PET imaging shows a decrease in tumor hypoxia with PRT and quantitative analysis is ongoing. Conclusion: Our initial work suggests that using concurrent CDDP and PRT may improve response to concurrent chemoradiation in vivo. Analysis of tumor regrowth, imaging data, and immunohistochemistry will help determine if our hypothesis is correct and provide further understanding of the mechanisms of PRT in the context of concurrent chemotherapy.

Mi M (2015). "Leveraging research synthesis for promoting and expanding library services and educational programs." Journal of Academic Librarianship. ePub Ahead of Print.

[Full-Text](#)

Medical Library

Research synthesis (or systematic review) uses systematic techniques to comprehensively search, select, appraise, and summarize separate empirical studies to minimize bias in the review process. The past decade saw a growing interest in research synthesis in health sciences and other disciplines. Librarians as information professionals and knowledge workers are well poised to educate faculty and students about the systematic review as one type of research methodology and diffuse it into the traditional hypothesis-driven research discourse and undertakings. This article illustrates how a medical library at a medical school developed strategies to leverage research synthesis for expanding library services and educational programs. © 2015 Elsevier Inc.

Mitton KP, Schunemann R, Guzman E, Dailey WA, **Drenser KA**, Cheng M, Metcalf B, Laux K, DeLooff C, **Trese MT** and Pediatric Retinal Res Lab EV (2015). "The B-isoform of VEGFA-165 does not cause retinal neovascularization in vivo, but does trigger inflammatory response and breakdown of the blood retinal barrier." Investigative Ophthalmology and Visual Science 56(7): Ab 808.

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Department of Ophthalmology

Mogrovejo E, Gjeorgjievski M and **Cappell MS** (2015). "Coexistence of hepatocellular carcinoma and small lymphocytic lymphoma in the absence of pre-damaged liver parenchyma: Case report and review of literature." American Journal of Gastroenterology 110: S385.

[Request Form](#)

Department of Internal Medicine

Background: Hepatocellular carcinoma (HCC) is a common type of primary liver cancer. Frequently described risk factors include alcoholism, hepatitis B and C, chronic liver disease and cirrhosis. Chronic liver disease,

particularly from hepatitis C infection has been reported as a risk factor for non-Hodgkin's lymphoma (NHL). Small lymphocytic lymphoma (SLL) accounts for about 5% of all NHLs. Simultaneous occurrences of HCC and SLL have been rarely reported. Case: A 74-year-old male with a history of hypertension, diabetes mellitus, atrial fibrillation, cerebrovascular accident, obesity, depression and no previous history of liver disease underwent an abdominal CT scan for a possible abdominal aortic aneurysm. The CT scan showed massive intra-abdominal lymphadenopathy, several lesions in the liver, the largest located in the anterior segment of the right lobe measuring 2.1 x 1.8 cm. The patient had no previous history of alcohol intake or hepatotoxic medications. Liver enzymes were within normal limits and hepatitis panel was negative. Patient underwent hand-assisted laparoscopy with laparoscopic lymph node and liver biopsy showing SLL in the lymph node and hemangioma in the liver specimen. Bone marrow biopsy was positive for SLL. CT scan of the chest/abdomen/ pelvis taken 26 months later showed progression of the largest liver lesion. An ultrasound guided biopsy showed moderately differentiated HCC with no evidence of lymphoma, steatosis, fibrosis or cirrhosis. The patient underwent radiofrequency ablation and 6 months later subtotal hepatectomy confirming the diagnosis of HCC. Twenty-four months later patient decided to receive hospice care after developing metastatic disease to the lungs and brain. Comment: Chronic liver disease has been strongly associated with HCC. Few case reports have described the association between HCC and NHL but almost all of them showed a pre-existent damaged parenchyma (chemotherapy, radiotherapy, hepatitis B or C infection and nodular regenerative hyperplasia). However, in this case, no pre-damaged liver parenchyma was discovered. To the best of our knowledge this is the second case describing concomitant SLL and HCC in a non-pre-damaged liver parenchyma. Further studies are required to establish firm evidence of a relationship between these two entities.

Mogrovejo E, Gjeorgjievski M and **Cappell MS** (2015). "Dental injuries from EGD: Report of three cases and literature review." *American Journal of Gastroenterology* 110(Sup 1): S212.

[Request Form](#)

Department of Internal Medicine

Introduction: Although dental injuries are well described complications of laryngotracheal intubation for general anesthesia for surgery, scant data exist regarding dental injury from esophagogastroduodenoscopy (EGD). Three cases of dental injury during EGD are reported. Case 1: A 65-year-old female with a history of diabetes and CAD referred for EGD for dysphagia and pyrosis. The patient had intact teeth with very poor dentition. An anesthesiologist evaluated the patient, administered sedation (propofol, etomidate), and monitored the patient. An Olympus GIF-Q160 endoscope was introduced under direct vision revealing a hiatal hernia, chronic esophagitis, and a Schatzki's ring which was dilated using a Rigiflex Microvasive hydrostatic balloon at 6 ATMs. EGD was accomplished without difficulty. After EGD, the patient's family noted that a left incisor was very loose and had to be removed. Case 2: A 72-year-old male with a history of cirrhosis referred for EGD for coffee-ground emesis. The patient had extremely poor dentition. An anesthesiologist evaluated the patient, administered moderate sedation (etomidate), and monitored the patient. An Olympus GIF-Q180 endoscope was introduced under direct vision revealing erosions in the distal esophagus. EGD was accomplished without difficulty. After EGD, anesthesiologist noted that lower right frontal bottom tooth was barely attached, tooth removed for patient safety. Case 3: A 46-year-old male with a history of HIV referred for EGD for iron deficiency anemia, vomiting, and weight loss. The patient had documented caps and intact bonding. An anesthesiologist evaluated the patient, administered moderate sedation (propofol), and monitored the patient. An Olympus GIF-Q180 endoscope was introduced under direct vision revealing a hiatal hernia and ulcerative esophagitis. EGD was accomplished without difficulty. After EGD patient stated bonding of his two top front teeth were missing, patient found part of the lying bond on stretcher. Discussion: The incidence of dental injury during general anesthesia is approximately 1:1000 endotracheal intubations. Data on the incidence associated with EGD are limited, with a literature review revealing only one report of 2 cases of dental injury in a study of 5,000 EGDs. In this prior report the two patients had partial dentures that replaced most of their teeth and were removed for EGD, a practice that the authors discouraged. These three cases alert endoscopists of the dangers of dental injury during EGD.

Mogrovejo E, Gjeorgjievski M and **Nojkov B** (2015). "Acute idiopathic pancreatitis with normal lipase: Case report and literature review." American Journal of Gastroenterology 110(Sup 1): S103.

[Request Form](#)

Department of Internal Medicine

Introduction: Serum lipase level is considered a highly reliable test to rule out acute pancreatitis. Few previous cases of clinically proven acute pancreatitis, with normal lipase, have been reported in the setting of alcohol intake, gallstone, trauma, hypertriglyceridemia and medications. No prior case of acute idiopathic pancreatitis with normal lipase has been reported. Case: A 21-year-old woman presented to the emergency room with one-day history of severe, acute onset, epigastric pain. The pain was sharp, radiating to the back, and associated with nausea and vomiting. The patient had a similar episode several months prior. Review of systems was negative. There was no recent trauma. She had no significant past medical or surgical history. Patient quit smoking 2 years prior, did not use any alcohol or illicit drugs, nor was consuming any medications, including over the counter and herbal supplements. Family history was negative for hypertriglyceridemia, autoimmune and pancreatic/gallbladder related diseases. Physical examination was positive only for tenderness in the epigastric area. Laboratory studies revealed unremarkable complete blood count, comprehensive metabolic panel, amylase (46, nl=20-104 U/L) and lipase (46, nl=7-60 U/L). A CT scan of the abdomen and pelvis with contrast done the day of admission showed moderate peripancreatic and mesenteric inflammatory changes consistent with acute pancreatitis, without evidence of gallstones or cholelithiasis. Lipid panel and immunoglobulin-G4 level were normal and MRCP confirmed the CT scan findings. Patient was treated supportively with intravenous fluids and analgesics. Amylase and lipase levels remained normal throughout the hospital stay. Patient was discharged on day 7 with complete resolution of symptoms. Discussion: According to the ACG guidelines the diagnosis of acute pancreatitis requires 2 of the following: 1) characteristic abdominal pain 2) serum amylase and/or lipase more than 3 times the upper limit of normal; or 3) CT scan findings compatible with acute pancreatitis. Serum lipase rises within a few hours of symptoms onset in acute pancreatitis and it has a negative predictive value that approaches 100%. A normal serum lipase level in the setting of acute pancreatitis is an extremely rare occurrence. Conclusion: This report shows that acute pancreatitis with normal amylase and lipase levels can occur and, in appropriate clinical setting, abdominal imaging should be obtained to confirm the diagnosis.

Molenda DE and Lulis S (2015). "Informed consent for psychotropic medication use: A novel approach to changing physician behavior." Journal of the American Medical Directors Association 16(12): 1097-1099.

[Full-Text](#)

Department of Internal Medicine

Moran JM, Feng M, Marsh R, Griffith KA, Benedetti L, **Grills IS**, Walker EM, Fraser C, Raymond S, Blausen JP, Gielda BT, Vicini FA, Wilson M, Dryden DA, Parent K, Ewald A, Matuszak MM, Jagsi R, Grubb M and Pierce LJ (2015). "Impact of cardiac sparing techniques on cardiac doses for left breast cancer patients: A multicenter analysis." International Journal of Radiation Oncology Biology Physics 93(3): E25-E26.

[Full-Text](#)

Department of Radiation Oncology

Purpose/Objective(s): Due to potential long-term cardiac toxicity following breast RT, minimizing cardiac dose has been increasingly prioritized. Techniques such as use of heart blocks or deep-inspiration breath hold (DIBH) can decrease cardiac dose. Clinical tradeoffs between cardiac sparing and target coverage can also be made. We assessed the effect of treatment technique choices on cardiac and breast doses in 8 institutions within a quality collaborative (Michigan Radiation Oncology Quality Consortium, MROQC). Materials/Methods: With IRB approval, DICOM-RT data, motion management information, and treatment technique were submitted for central review and evaluated in 104 patients with left breast cancer, randomly selected within strata for nodal treatment and motion management. The breast, whole heart, and left anterior descending artery (LAD) were contoured at the coordinating center for consistency. Target coverage and mean and max doses to the heart and LAD were analyzed for the complete treatment course and compared using the Wilcoxon rank-sum test. Results: Dose prescriptions for the breast varied from 40-50.6 Gy. Ninety percent of pts had a boost of 8-16 Gy. Forty-one percent were treated using DIBH. Sixty-seven

percent had heart blocks. Twenty-one percent received nodal RT. Treatment techniques were 3D (74%) or IMRT (26%), with IMRT being defined as any static or rotational technique with at least 1 beam delivering ≥ 5 segments. The table shows cardiac and breast doses by DIBH, heart block, treatment technique, and nodal targeting. Max heart and LAD doses were significantly lower when DIBH was used. In contrast, whole heart and LAD doses were not significantly different in pts treated with or without heart blocks. Pts treated with IMRT had higher max heart and LAD doses when compared to 3D RT. The dose covering 95% of the breast (D95) was not different in pts with or without DIBH but was significantly lower in pts with heart blocks. Pts with nodal RT had higher breast D95. Conclusion: Cardiac doses are highly variable even within a quality collaborative. With DIBH, max dose to the heart was 60% lower with breast coverage maintained. The use of heart blocks was associated with reduced breast coverage but not lower cardiac dose. MROQC members will use these data to guide future heart dose reductions. Further comparisons of cardiac doses are warranted of 3D vs IMRT techniques. (Table Presented).

Mulhem E, Fulbright N and Duncan N (2015). "Prostate cancer screening." *American Family Physician* 92(8): 683-688.
[Full-Text](#)

Department of Family Medicine

Among American men, prostate cancer is the most commonly diagnosed cancer and the second leading cause of cancer-related death. Although prostate-specific antigen (PSA) testing has been used to screen for prostate cancer for more than 25 years, the test has low sensitivity and specificity, and there is no clear evidence for determining what threshold warrants prostate biopsy. Only one of five randomized controlled trials of PSA screening showed an effect on prostate cancer-specific mortality, and the absolute reduction in deaths from prostate cancer was one per 781 men screened after 13 years of follow-up. None of the trials showed benefit in all-cause mortality, and screening increased prostate cancer diagnoses by about 60%. Harms of screening include adverse effects from prostate biopsy, overdiagnosis and overtreatment, and anxiety. One-half of screen-detected prostate cancers will not cause symptoms in the patient's lifetime, and 80% to 85% of men who choose observation will not die from prostate cancer within 15 years. Adverse effects of radical prostatectomy include perioperative complications, erectile dysfunction, and urinary incontinence. Radiation therapy can cause acute toxicity leading to urinary urgency, dysuria, diarrhea, and rectal pain; late toxicity includes erectile dysfunction, rectal bleeding, and urethral stricture. Despite variations across guidelines, no organization recommends routine PSA testing, and all endorse some form of shared decision-making before testing. If screening is performed, it should generally be discontinued at 70 years of age. © 2015 American Academy of Family Physicians.

Naumann I and Folbe A (2015). "Drainage procedures of the petrous apex," In Larouere MJ, Babu SC and Bojrab DI (ed). *Surgical Techniques in Otolaryngology-Head and Neck Surgery: Otologic and Neurotologic Surgery*. Daryaganj: Jaypee Brothers Medical Pub. pp: 149-158.

[Request Form](#)

Department of Surgery

Nickel JC, Gorin MA, Partin AW, Assimos D, Brawer M, Nicolai H, **Chancellor MB**, Goggins A, Loeb S and Shapiro E (2015). "Best of the 2015 AUA annual meeting: Highlights from the 2015 American Urological Association Annual Meeting, May 15-19, 2015, New Orleans, LA." *Rev Urol* 17(3): 179-189.

[Full-Text](#)

Department of Urology

Noiva R and **Rivest R** (2015). "Curriculum inventory in context - Vol. 2, No. 12: Benchmarking for continuous quality improvement (iCollaborative)." MedEdPortal Resource ID 4193

[Full-Text](#)

Administration

Department of Medical Education

Curriculum Inventory in Context (CIIC) is a regularly issued commentary article about reports generated from Curriculum Inventory data, each authored by a contributor from an AAMC member medical school. This

issue offers commentary from Robert Noiva, Ph.D., and Robin Rivest, M.Ed., M.B.A., of Oakland University William Beaumont School of Medicine, on the CI graph "Number of Medical Schools Including Topic in Required Courses and Elective Courses."

Ogawa T, Ishizuka O, Ueda T, Tyagi P, **Chancellor MB** and Yoshimura N (2015). "Current and emerging drugs for interstitial cystitis/bladder pain syndrome (IC/BPS)." Expert Opinion on Emerging Drugs 20(4): 555-570.

[Request Form](#)

Department of Urology

Introduction: Interstitial cystitis or bladder pain syndrome (IC/BPS) is a debilitating chronic disease characterized by suprapubic pain and lower urinary tract symptoms; however, the etiology is still unknown. Therefore, the long-lasting, effective treatments of IC/BPS are still not established, and the treatment is sometimes empirically selected depending on practitioners experience and preference. Area covered: In this review we focus on the current treatments, ongoing clinical trials, and several potential new drugs based on the results of basic and clinical research studies. First, we discuss the potential etiologies of IC/BPS that include altered barrier lining, afferent and/or central nervous system abnormalities, possible contribution of inflammation or infection and abnormal urothelial signaling. Then, the current therapies of IC/BPS, either systemic or local, are reviewed by critical evaluation of the efficacy and shortcomings of each treatment. Finally, based on proposed etiologies of the disease, potential emerging drugs and treatments are discussed. Expert opinion: Current therapies often fail to control the symptoms of IC/BPS. Several interventions including sustained drug release and retaining techniques, and drugs that act on afferent neural pathways are emerging and may be promising. In addition, phenotyping of IC/BPS patients based on cystoscopic findings (e.g., Hunner vs. non-Hunner lesion) or patients symptoms would be important for further investigation of IC/BPS etiology and the evaluation of efficacy of new treatments. © 2015 Taylor & Francis.

Oleksiak MA, **Sawyer KN** and Berger DA (2015). "Pragmatic value of a novel emergency medicine resident "resuscitation" rotation." Annals of Emergency Medicine 66(4): S42.

[Full-Text](#)

Department of Emergency Medicine

Study Objectives: During emergency medicine (EM) residency, time at the bedside with high-acuity patients is often limited. For this reason, we developed a novel rotation for our PGY-2 residents focusing on high-acuity patients with attention to sepsis, cardiac arrest, pulmonary embolism, and neuro-devastation. Our objective is to retrospectively quantify the resuscitative and procedural experience of our residents during the first few months of offering this rotation. Methods: Our EM resident "resuscitation" rotation occurs at a large tertiary referral center with an approximate annual volume of 120,000 visits, which includes a 30% overall admission rate and a 17% ICU admission rate. The hospital is also home to a longstanding three year EM residency that includes six critical care months. The goals of our resuscitation rotation include: (1) Focused exposure to high-acuity patients; (2) Improved ability to provide active bedside evaluation and management; (3) Time for self-reflection through case logging and organized retrospective case analysis; (4) Enhanced understanding of current resuscitation literature through journal club sessions. The resuscitation resident's clinical involvement occurs in an assistive manner to normal staffing, allowing the individual to focus on strictly caring for the critically ill without the many additional responsibilities of a routine emergency medicine shift (managing non-critical patients, charting, etc). There is a dedicated meeting each week during which the resident leads a moderated discussion of interesting or controversial cases and reviews a pertinent journal article. These sessions permit self-reflection on patient care management and hospital course, as well as clinical debriefing. In total, residents are expected to work 40-50 hours/week. Results: During a four-month introductory period, six residents logged a total of 172 resuscitation encounters. Within these resuscitations, 60% (103/172) had a critical care ultrasound performed. Residents logged 53 procedures including 28 central lines, 13 arterial lines, and 12 intubations. In 90% of cases (155/172) residents reported that their involvement more rapidly identified problems or changed management/ disposition. Informal feedback from EM faculty has been universally positive. Conclusion: This retrospective observational study of our new resuscitation rotation provides PGY-2 residents with exposure

exclusively to high-acuity patients as well as critical care procedures and ultrasounds. As a result, this rotation has become a required component of our PGY-2 curriculum. Going forward we plan to further investigate the impact of the resuscitation resident on patient outcome, patient safety, and transition of care.

Page TP (2015). "Anterior zonulotomy: Rescue technique for capsulorhexis tear-out." Journal of Cataract and Refractive Surgery 41(10): 2036-2039.

[Full-Text](#)

Department of Ophthalmology

An anterior zonulotomy technique to rescue a capsulorhexis tear-out is described. The technique uses microsurgical instruments that are capable of performing microprocedures within the confines of the anterior chamber. The anterior zonulotomy releases the tractional impediment caused by the anterior zonular fibers, enabling the surgeon to use conventional rescue methods to redirect the CCC centrally. The technique demonstrates how microsurgical instruments can be used to safely perform an anterior zonulotomy for radial tear-outs that have become lodged in the zonular fibers. Financial Disclosure The author has no financial or proprietary interest in any material or method mentioned.

Paich K, Dunn R, Skolarus T, Montie J, Hollenbeck B, Palapattu G, **Wood D**, Mitchell S, Hola V, Erickson K, Shifferd J and Wittmann D (2015). "Preparing patients and partners for recovery from the side effects of prostate cancer surgery: A group approach." Urology. ePub Ahead of Print.

[Full-Text](#)

Department of Urology

Objective: To evaluate the acceptance and knowledge attained in a preoperative psychoeducational group seminar for patients and partners. Education before radical prostatectomy (RP) helps patients set appropriate expectations for functional recovery. We hypothesized that the seminar would be acceptable and would facilitate learning. Materials and Methods: Men scheduled for RP from March 1, 2012, to July 31, 2013, were eligible, and partners were invited. The 2.5-hour interactive seminar included multidisciplinary presentations about surgery-related urinary and sexual outcomes, rehabilitation, and couples' work toward recovering sexual intimacy. A satisfaction and knowledge survey was administered immediately afterward. We analyzed demographic and satisfaction data with descriptive statistics and evaluated congruence of patients' and partners' knowledge responses using nonparametric statistics. Results: Of 618 patients scheduled, 426 patients and 342 partners attended; 323 couples provided complete data. Over 90% of participants found the seminar informative and 74% found a group setting comfortable; 84% found travel to the seminar burdensome. Most patients and partners (84% and 90%, respectively) expected some urinary incontinence and understood rehabilitation strategies to regain bladder control; 84% of patients and 78% of partners expected postsurgery sexual activity to be different and 73% of patients and 65% of partners expected surgery to make erections worse. Couples were incongruent regarding frequency of incontinence, likelihood of erectile dysfunction, and sex being different after surgery: patients were more realistic. Conclusion: A preoperative psychoeducational group seminar on the recovery from RP side effects promotes realistic expectations and is acceptable to patients and partners. Incongruent couples may need further instruction after surgery. Web-based methodology could improve access and should be studied in future research. © 2015 Elsevier Inc.

Palmer CW, Jones CI and **Park DK** (2015). "Postoperative infections of the spine." Seminars in Spine Surgery. ePub Ahead of Print.

[Full-Text](#)

Department of Orthopedic Surgery

Postoperative infections are an unfortunate and potentially devastating complication of routine spinal surgery. While primary prevention is the key, global management consists of perioperative strategies for risk reduction, accurate diagnosis, and careful decision-making for medical versus surgical treatment. When revision surgery is necessary, debridement with or without retention of implants (if present) in concert with administration of antimicrobial agents is indicated. The following section discusses these issues as well as specific operative techniques including adjunctive local antibiotic usage, vacuum-assisted closure, closed

suction drainage, and soft tissue reconstruction for more complex wounds. © 2015 Elsevier Inc.

Parikh S, Zhang P and Qu ZH (2015). "CD133 as a specific marker to differentiate in situ and invasive carcinoma of colon from reactive colonic epithelial changes." *American Journal of Clinical Pathology* 144: A402.

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OUWB Medical Student Author

Department of Pathology

Peters KM, Killinger KA, Gilleran JP, Bartley J, Wolfert C and Boura JA (2015). "Predictors of reoperation after sacral neuromodulation: A single institution evaluation of over 400 patients." *Neurourology and Urodynamics*. ePub Ahead of Print.

[Full-Text](#)

Department of Urology

Department of Biomedical Sciences (BHS)

Aims: To explore factors that may predispose patients to reoperation after sacral neuromodulation (SNM). **Methods:** Patients enrolled in our longitudinal neuromodulation database were reviewed. Medical records data, and voiding diaries, Interstitial Cystitis Symptom-Problem Indices (ICSI-PI), and Overactive Bladder Questionnaires (OAB-q) at baseline and 3 months were analyzed with Pearson's χ^2 , Fisher's Exact test, Wilcoxon rank tests, and multivariable logistic regression. **Results:** Of 407 patients, 134 (33%) had at least one reoperation over median 28.9 months follow-up (range 1.6-121.7); 78/407 (19%) were revised, and 56/407 (14%) were explanted. The most common reason for reoperation was lack of efficacy/worsening symptoms (n=87). The reoperations group had a higher proportion of women (P=0.049), lower mean body mass index (BMI; P=0.010), more reprogramming events (P<0.0001), longer median follow-up (P=0.0008), and higher proportions with interstitial cystitis (P=0.013), using hormone replacement therapy (P=0.0004), and complications (P<0.0001). Both reoperations/no reoperations groups had similar improvements in ICSI-PI (P<0.0001 for both), OAB-q severity (P<0.0001 for both) and quality of life (P<0.0001 for both). On multivariate analysis, only longer follow-up (P=0.0011; OR 1.048; CI 1.019, 1.078) and having a complication (P<0.0001; OR 23.2; CI 11.47, 46.75) were significant predictors of reoperations. In women only, using HRT at time of implant was also predictive of reoperation (P=0.0027; OR 3.09; CI 1.48, 6.46). **Conclusions:** In this largest known series to date, one third of the patients required reoperation and the most common reason was lack of efficacy/worsening symptoms. Ongoing study is needed as the technology continues to evolve. © 2015 Wiley Periodicals, Inc.

Pinkas D and **Wiater J** (2015). "The floating shoulder," In Greiwe M (ed). *Shoulder and Elbow Trauma and its Complications*. Vol 1. Cambridge: Woodhead Publishing. pp: 253-268.

[Request Form](#)

Department of Orthopedic Surgery

Pinkas D, **Wiater JM**, Spencer EE, Jr., Edwards TB, Uribe JW, Declercq G, Murthi AM and Hertel R (2015). "Shoulder prosthetic arthroplasty options in 2014: What to do and when to do it." *Instructional Course Lectures* 64: 193-202.

[Full-Text](#)

Department of Orthopedic Surgery

The number of shoulder arthroplasty procedures performed in the United States is steadily increasing as a result of an expansion in implant options, clinical indications, and surgical experience. Available options include stemmed implants, short-stemmed or stemless prostheses, fracture-specific designs, resurfacing implants, partial surface replacement, metal-backed or polyethylene glenoid components designed for cementation or bone ingrowth, and reverse total shoulder arthroplasty. Efforts to re-create anatomy, improve outcomes, and avoid complications have resulted in many changes in prosthesis design. Despite these changes, failures still occur, and revision surgery is sometimes necessary. A thorough knowledge of current arthroplasty options, indications, and the principles of implantation is necessary to optimize outcomes after shoulder arthroplasty.

Purcell DJ, Chauhan S, Jimenez-Stinson D, Elliott KR, Tsewang TD, Lee YH, **Marples B** and Lee DY (2015). "Novel CARM1-interacting protein, DZIP3, is a transcriptional coactivator of estrogen receptor- α ." [Molecular Endocrinology](#) 29(12): 1708-1719.

[Full-Text](#)

Department of Radiation Oncology

Coactivator-associated arginine methyltransferase 1 (CARM1) is known to promote estrogen receptor (ER) α -mediated transcription in breast cancer cells. To further characterize the regulation of ER α -mediated transcription by CARM1, we screened CARM1-interacting proteins by yeast two-hybrid. Here, we have identified an E3 ubiquitin ligase, DAZ (deleted in azoospermia)-inter-acting protein 3 (DZIP3), as a novel CARM1-binding protein. DZIP3-dependent ubiquitination of histone H2A has been associated with repression of transcription. However, ER α reporter gene assays demonstrated that DZIP3 enhanced ER α -mediated transcription and cooperated synergistically with CARM1. Interaction with CARM1 was observed with the E3 ligase RING domain of DZIP3. The methyltransferase activity of CARM1 partially contributed to the synergy with DZIP3 for transcription activation, but the E3 ubiquitin ligase activity of DZIP3 was dispensable. DZIP3 also interacted with the C-terminal activation domain 2 of glucocorticoid receptor-interacting protein 1 (GRIP1) and enhanced the interaction between GRIP1 and CARM1. Depletion of DZIP3 by small interfering RNA in MCF7 cells reduced estradiol-induced gene expression of ER α target genes, GREB1 and pS2, and DZIP3 was recruited to the estrogen response elements of the same ER α target genes. These results indicate that DZIP3 is a novel coactivator of ER α target gene expression. © 2015 by the Endocrine Society.

Putnam A, Gu XK, Haymart B, Kline-Rogers E, **Almany S**, Kozlowski J, Krol GD, Kaatz S, Froehlich JB and Barnes GD (2015). "The changing characteristics of atrial fibrillation patients treated with warfarin." [Journal of Thrombosis and Thrombolysis](#) 40(4): 488-493.

[Full-Text](#)

Department of Internal Medicine

It has been suggested that direct oral anticoagulants are being preferentially used in low risk atrial fibrillation (AF) patients. Understanding the changing risk profile of new AF patients treated with warfarin is important for interpreting the quality of warfarin delivery through an anticoagulation clinic. Six anticoagulation clinics participating in the Michigan Anticoagulation Quality Improvement Initiative enrolled 1293 AF patients between 2010 and 2014 as an inception cohort. Abstracted data included demographics, comorbidities, medication use and all INR values. Risk scores including CHADS(2), CHA(2)DS(2)-VASc, HAS-BLED, SAME-TT2R2, and Charlson comorbidity index (CCI) were calculated for each patient at the time of warfarin initiation. The quality of anticoagulation was assessed using the Rosendaal time in the therapeutic range (TTR) during the first 6 months of treatment. Between 2010 and 2014, patients initiating warfarin therapy for AF had an increasing mean CHADS(2) (2.0 +/- A 1.1 to 2.2 +/- A 1.4, p = 0.02) and CCI (4.7 +/- A 1.8 to 5.1 +/- A 2.0, p = 0.03), and a trend towards increasing mean CHA(2)DS(2)-VASc, HAS-BLED, and SAME-TT2R2 scores. The actual TTR remained unchanged over the study period (62.6 +/- A 18.2 to 62.7 +/- A 17.0, p = 0.98), and the number of INR checks did not change (18.9 +/- A 5.2 to 18.5 +/- A 5.1, p = 0.06). Between 2010 and 2014, AF patients newly starting warfarin had mild increases in risk for stroke and death with sustained quality of warfarin therapy.

Rahimy E, Pitcher JD, III, Abbey AM, **Garretson BR** and Haller JA (2015). "No-touch removal of anterior segment-migrated dexamethasone implant." [Retina](#) 35(11): 2414-2416.

[Full-Text](#)

Department of Ophthalmology

Rao P, Robinson J, Yonekawa Y, Thomas BJ, **Drenser KA**, **Trese MT** and **Capone A** (2015). "Standard and wide field angiographic features of serous and exudative congenital X-linked retinoschisis and pathophysiologic correlations." [Investigative Ophthalmology and Visual Science](#) 56(7): Ab 3832.

[Request Form](#)

Department of Ophthalmology

Rao P, Robinson J, Yonekawa Y, Thomas BJ, **Drenser KA, Trese MT and Capone A, Jr.** (2015). "Wide-field imaging of nonexudative and exudative congenital x-linked retinoschisis." Retina. ePub Ahead of Print.

[Request Form](#)

Department of Ophthalmology

PURPOSE:: To describe wide-field imaging features of patients with congenital X-linked retinoschisis.

METHODS:: This is a retrospective nonconsecutive series of 36 eyes from 18 patients with congenital X-linked retinoschisis from 2008 to 2014. Wide-field color fundus photographs, optical coherence tomography images, and wide-field fluorescein angiography images were reviewed. Patients were classified to have either exudative or nonexudative retinoschisis based on the presence or absence of lipid exudates. RESULTS:: Eleven eyes exhibited exudative retinoschisis (30%), whereas the remaining were nonexudative. Exudative disease occurred more commonly in older patients (14.4 vs. 4.0 years; $P < 0.001$). The most frequent location of exudation was the macula. Subretinal hemorrhage was present in 4 eyes (11%). Macular findings included an atypical foveal avascular zone in 7 eyes (19%) and submacular fibrosis or retinal folds in 6 eyes (17%). Peripheral characteristics included fibrosis or folds (11%), bridging vessels (8%), and vascular sheathing (8%). Thirteen of the 22 eyes (59%) demonstrated leakage on fluorescein angiography. CONCLUSION:: Exudation may be more common in congenital X-linked retinoschisis than previously recognized. The presence of exudates with concurrent angiographic leakage suggests that exudation may be due to chronic vascular permeability and not solely caused by intraschisis hemorrhage, which has been classically described. © 2015 by Ophthalmic Communications Society, Inc.

Rezaee ME and Pollock M (2015). "Prevalence and associated cost and utilization of multiple chronic conditions in the outpatient setting among adult members of an employer-based health plan." Population Health Management 18(6): 421-428.

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OUWB Medical Student Author

Department of Internal Medicine

Patients with multiple chronic conditions (MCCs) are a significant concern for the US health care system.

MCC patients represent an increasing proportion of the US population and are associated with increased health care cost and utilization, and poor quality of care. Research that has been conducted on MCC patients to date has been at the national level using large data sets, such as Medicare and Medicaid claims and the National Inpatient Sample. These studies have produced research evidence that may be of little utility to individual employer-based health plans given the inherent differences in the patient populations they serve. This study analyzed evaluation and management claims for patients ages 18 years and older ($n=632,477$) from the Beaumont Employee Health Plan (BEHP), a regional health insurance provider serving Beaumont Health System employees and their families across Southeastern Michigan. The study found that individuals with MCCs are associated with increased cost and visits, and decreased time between appointments in the outpatient setting. Despite decreasing prevalence of MCCs over the study period, substantial increases in cost and visits, and a decrease in time between appointments was observed for MCC patients. Asthma and chronic back pain were uniquely identified as additional primary targets for disease management programs for employer-based health plans. These findings speak to the value of studying MCCs at the employer-based health plan level, where population-specific MCCs can be identified for meaningful intervention and management. Significant opportunity exists for employer-based health plans to study, prevent, and manage MCCs among adult patients. © Mary Ann Liebert, Inc. 2015.

Riebe D, **Franklin BA**, Thompson PD, Garber CE, Whitfield GP, Magal M and Pescatello LS (2015). "Updating ACSM's recommendations for exercise preparticipation health screening." Medicine and Science in Sports and Exercise 47(11): 2473-2479.

[Full-Text](#)

Department of Internal Medicine

The purpose of the American College of Sports Medicine's (ACSM) exercise preparticipation health screening process is to identify individuals who may be at elevated risk for exercise-related sudden cardiac death

and/or acute myocardial infarction. Recent studies have suggested that using the current ACSM exercise preparticipation health screening guidelines can result in excessive physician referrals, possibly creating a barrier to exercise participation. In addition, there is considerable evidence that exercise is safe for most people and has many associated health and fitness benefits; exercise-related cardiovascular events are often preceded by warning signs/symptoms; and the cardiovascular risks associated with exercise lessen as individuals become more physically active/fit. Consequently, a scientific roundtable was convened by the ACSM in June 2014 to evaluate the current exercise preparticipation health screening recommendations. The roundtable proposed a new evidence-informed model for exercise preparticipation health screening on the basis of three factors: 1) the individual's current level of physical activity, 2) presence of signs or symptoms and/or known cardiovascular, metabolic, or renal disease, and 3) desired exercise intensity, as these variables have been identified as risk modulators of exercise-related cardiovascular events. Identifying cardiovascular disease risk factors remains an important objective of overall disease prevention and management, but risk factor profiling is no longer included in the exercise preparticipation health screening process. The new ACSM exercise preparticipation health screening recommendations reduce possible unnecessary barriers to adopting and maintaining a regular exercise program, a lifestyle of habitual physical activity, or both, and thereby emphasize the important public health message that regular physical activity is important for all individuals. © 2015 by the American College of Sports Medicine.

Rihal CS, Naidu SS, Givertz MM, Szeto WY, Burke JA, Kapur NK, Kern M, Garratt KN, **Goldstein JA**, Dimas V and Tu T (2015). "2015 SCAI/ACC/HFSA/STS Clinical Expert Consensus Statement on the Use of Percutaneous Mechanical Circulatory Support Devices in Cardiovascular Care." Journal of the American College of Cardiology 65(19): E7-E26.

[Full-Text](#)

Department of Internal Medicine

Although historically the intra-aortic balloon pump has been the only mechanical circulatory support device available to clinicians, a number of new devices have become commercially available and have entered clinical practice. These include axial flow pumps, such as Impella (R); left atrial to femoral artery bypass pumps, specifically the TandemHeart; and new devices for institution of extracorporeal membrane oxygenation. These devices differ significantly in their hemodynamic effects, insertion, monitoring, and clinical applicability. This document reviews the physiologic impact on the circulation of these devices and their use in specific clinical situations. These situations include patients undergoing high-risk percutaneous coronary intervention, those presenting with cardiogenic shock, and acute decompensated heart failure. Specialized uses for right-sided support and in pediatric populations are discussed and the clinical utility of mechanical circulatory support devices is reviewed, as are the American College of Cardiology/American Heart Association clinical practice guidelines.

Rizzuti AE, Fridman G, **Rolain M** and Kaufman SC (2015). "Trypan blue as a surgical adjunct to decrease lens capsule elasticity in pediatric cataract surgery." Investigative Ophthalmology and Visual Science 56(7): Ab 1901.

[Request Form](#)

Department of Ophthalmology

Rodenbaugh DW (2015). "Maximize a team-based learning gallery walk experience: herding cats is easier than you think." Advances in Physiology Education 39(4): 411-413.

[Request Form](#)

Department of Biomedical Sciences (OU)

Rohde RS (2015). "Medical management: Role of NSAIDs/topical medications," In Wolf JM (ed). Tennis Elbow: Clinical Management. New York: Springer. pp: 33-37.

[Full-Text](#)

Department of Orthopedic Surgery

Oral and topical nonsteroidal anti-inflammatory drugs (NSAIDs) commonly are used in the management of lateral epicondylitis. Limited studies suggest that they might be helpful for short-term pain management, but likely do not alter the long-term course of disease or outcome. As topical NSAIDs have fewer significant

adverse effects than oral NSAIDs, the former might be considered preferable for short-term management of pain associated with lateral epicondylitis. © Springer Science+Business Media New York 2015.

Safian RD (2015). "Will invasive coronary imaging identify vulnerable plaque and predict future cardiac events?" Catheterization and Cardiovascular Interventions 86(6): 1022-1023.

[Full-Text](#)

Department of Internal Medicine

Sargent E and **Kartush J** (2015). "Facial nerve surgery," In Larouere MJ, Babu SC and Bojrab DI (ed). Surgical Techniques in Otolaryngology-Head and Neck Surgery: Otologic and Neurotologic Surgery. Daryaganj: Jaypee Brothers Medical Pub. pp: 159-177.

[Request Form](#)

Department of Surgery

Savin MA, Chehab M, **Campbell JM**, Savin JH, Cash C, **Wong CYO** and **Schultz CC** (2015). "Yttrium-90 infusion: Incidence and outcome of delivery system occlusions during 885 deliveries." Journal of Vascular and Interventional Radiology 26(12): 1769-1776.

[Full-Text](#)

Department of Diagnostic Radiology and Molecular Imaging

Purpose To evaluate the incidence, cause, and management of delivery system occlusions during yttrium-90 (90Y) microsphere infusions and to identify techniques to prevent occlusions. Materials and Methods A retrospective review was conducted of 885 consecutive radioembolization deliveries during 820 procedures (some with multiple deliveries) in 503 patients (mean age, 65 y; 293 male) performed between June 2001 and July 2013 at a single academic tertiary care hospital. Occlusions were reported prospectively, and procedural details were reviewed. Statistical analysis assessed associations between catheter occlusions and patient and procedural characteristics. Results Of 885 90Y microsphere deliveries, 11 resulted in occlusion (1.2%). Five occlusions were associated with contained leakage of radioactive material, and one was associated with a spill. Treatment was completed in the same day in 10 patients; repeat catheterization was required in five patients. One patient returned 1 week later to complete treatment. Occlusions were more frequent with deliveries of resin (11/492; 2.2%) versus glass (0/393; 0%) microspheres ($P = .002$). Occlusions were more likely to occur within the proximal portion of the delivery apparatus ($P = .002$). There was no significant relationship with any patient characteristics, and there was no improvement with operator experience. The most common cause of occlusion was resin microsphere delivery device failure. Conclusions 90Y microsphere delivery device occlusion is uncommon but does occur with resin microspheres. Understanding causes and how to troubleshoot can limit the incidence and detrimental effects. © 2015 SIR.

Sawarynski K, **Baxa D** and **Dereski M** (2015). "Eureka! energizing the next generation of clinical researchers." FASEB Journal 29(Sup 1): 559.555.

[Full-Text](#)

Department of Biomedical Sciences (OU)

Sawyer KN, **Shah P**, Qu L, Kurz MC, **Clark CL** and **Swor RA** (2015). "Triple rule out versus CT angiogram plus stress test for evaluation of chest pain in the emergency department." Western Journal of Emergency Medicine 16(5): 677-682.

[Full-Text](#)

Department of Emergency Medicine

Introduction: Undifferentiated chest pain in the emergency department (ED) is a diagnostic challenge. One approach includes a dedicated chest computed tomography (CT) for pulmonary embolism or dissection followed by a cardiac stress test (TRAD). An alternative strategy is a coronary CT angiogram with concurrent chest CT (Triple Rule Out, TRO). The objective of this study was to describe the ED patient course and short-term safety for these evaluation methods. Methods: This was a retrospective observational study of adult patients presenting to a large, community ED for acute chest pain who had non-diagnostic

electrocardiograms (ECGs) and normal biomarkers. We collected demographics, ED length of stay, hospital costs, and estimated radiation exposures. We evaluated 30-day return visits for major adverse cardiac events. Results: A total of 829 patients underwent TRAD, and 642 patients had TRO. Patients undergoing TRO tended to be younger (mean 52.3 vs 56.5 years) and were more likely to be male (42.4% vs. 30.4%). TRO patients tended to have a shorter ED length of stay (mean 14.45 vs. 21.86 hours), to incur less cost (median \$449.83 vs. \$1147.70), and to be exposed to less radiation (median 7.18 vs. 16.6mSv). No patient in either group had a related 30-day revisit. Conclusion: Use of TRO is feasible for assessment of chest pain in the ED. Both TRAD and TRO safely evaluated patients. Prospective studies investigating this diagnostic strategy are needed to further assess this approach to ED chest pain evaluation. © 2015 by the article author(s).

Scruggs RT and **Black EH** (2015). "Thyroid eye disease with significant levator involvement and ptosis: A case report." Ophthalmic Plastic and Reconstructive Surgery 31(6): e153-e154.

[Full-Text](#)

Department of Ophthalmology

A case of an 87-year-old woman with a history of Graves disease presenting with a 5-year history of severe ptosis and very poor levator function of the left side is presented. MRI revealed marked enlargement of all extraocular muscles and significant enlargement of the left levator muscle. Given the patient's age and atypical presentation of thyroid eye disease (TED), she was taken to the operating room for biopsy and ptosis repair with frontalis suspension. Histopathological analysis revealed chronic inflammation and fibrosis consistent with Graves disease. © 2015 The American Society of Ophthalmic Plastic and Reconstructive Surgery, Inc.

Sellin JN, Suki D, Harsh V, Elder BD, **Fahim DK**, McCutcheon IE, Rao G, Rhines LD and Tatsui CE (2015). "Factors affecting survival in 43 consecutive patients after surgery for spinal metastases from thyroid carcinoma." Journal of neurosurgery. Spine 23(4): 419-428.

[Request Form](#)

Department of Neurosurgery

OBJECT: Spinal metastases account for the majority of bone metastases from thyroid cancer. The objective of the current study was to analyze a series of consecutive patients undergoing spinal surgery for thyroid cancer metastases in order to identify factors that influence overall survival. METHODS: The authors retrospectively reviewed the records of all patients who underwent surgery for spinal metastases from thyroid cancer between 1993 and 2010 at the University of Texas MD Anderson Cancer Center. RESULTS: Forty-three patients met the study criteria. Median overall survival was 15.4 months (95% CI 2.8-27.9 months) based on the Kaplan-Meier method. The median follow-up duration for the 4 patients who were alive at the end of the study was 39.4 months (range 1.7-62.6 months). On the multivariate Cox analysis, progressive systemic disease at spine surgery and postoperative complications were associated with worse overall survival (HR 8.98 [95% CI 3.46-23.30], $p < 0.001$; and HR 2.86 [95% CI 1.30-6.31], $p = 0.009$, respectively). Additionally, preoperative neurological deficit was significantly associated with worse overall survival on the multivariate analysis (HR 3.01 [95% CI 1.34-6.79], $p = 0.008$). Conversely, preoperative embolization was significantly associated with improved overall survival on the multivariate analysis (HR 0.43 [95% CI 0.20-0.94], $p = 0.04$). Preoperative embolization and longer posterior construct length were significantly associated with fewer and greater complications, respectively, on the univariate analysis (OR 0.24 [95% CI 0.06-0.93] $p = 0.04$; and OR 1.24 [95% CI 1.02-1.52], $p = 0.03$), but not the multivariate analysis. CONCLUSIONS: Progressive systemic disease, postoperative complications, and preoperative neurological deficits were significantly associated with worse overall survival, while preoperative spinal embolization was associated with improved overall survival. These factors should be taken into consideration when considering such patients for surgery. Preoperative embolization and posterior construct length significantly influenced the incidence of postoperative complications only on the univariate analysis.

Shah AR, Abbey AM, Yonekawa Y, Khandan S, **Wolfe JD, Trese MT, Williams GA** and **Capone A, Jr.** (2015). "Widefield fluorescein angiography in patients without peripheral disease: A study of normal peripheral findings." Retina. ePub Ahead of Print.

[Request Form](#)

Department of Ophthalmology

PURPOSE:: Widefield photography and angiography provide access up to 200-degrees of the retinal periphery. The range of normal peripheral findings has not been characterized, yet is relevant to studies addressing putative peripheral retinal vascular pathology. **METHODS::** This study was an observational retrospective cohort study. Adult patients with epiretinal membrane or choroidal nevi who underwent imaging with Optos 200 MA/200Tx were included. Dye transit times, peripheral arteriovenous shunting, presence of vessels crossing the horizontal raphe, right angle vessels, terminal networks, absence of capillary detail, ground glass hyperfluorescence, peripheral drusen, and microaneurysms were evaluated. **RESULTS::** Fifty-eight eyes of 31 patients met inclusion criteria. Mean peripheral arterial filling time was 8.65 ± 2.54 seconds (range 3–15 seconds). One or more peripheral anomalies were noted in all patients ($P < 0.01$). The prevalences of findings were: arteriovenous shunting (0.00%), vessels crossing the horizontal raphe (44.83%), right angle vessels (70.69%), terminal networks (77.59%), absence of capillary detail (98.28%), ground glass hyperfluorescence (87.93%), drusen (34.48%), and microaneurysms (41.38%). **CONCLUSION::** There was a high prevalence of peripheral vascular anatomic variations in eyes expected to have normal peripheral retinal vasculature. These findings may provide a reference for future studies addressing putative pathologic peripheral angiographic findings. © 2015 by Ophthalmic Communications Society, Inc.

Shannon FL, Sakwa MP and Abbas RL (2015). "Surgical management of aortic valve stenosis," In Abbas AE (ed). Aortic Stenosis: Case-Based Diagnosis and Therapy. pp: 197-217.

[Full-Text](#)

Department of Surgery

The time-tested management of patients with severe aortic stenosis has been surgical aortic valve replacement (sAVR). The advances in AVR have progressed over the last 60 years with developments in the heart lung machine, type of valve prosthesis, minimally invasive approaches, and transcatheter techniques. There are currently over 80 types of prosthetic valves available for use. This chapter will provide an overview of the various surgical approaches for AVR as well as the types of aortic valve prosthesis. © Springer-Verlag London 2015. All rights reserved.

Sharma N, **Cappell MS**, Mehta D, Sao R, Bhalala M, Israel Y, Mittal V, Haq KF and Lebovics E (2015). "Trends in incidence, management, and outcomes of acetaminophen overdose in the United States." American Journal of Gastroenterology 110(Sup 1): S974-S975.

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Department of Internal Medicine

Introduction: Acetaminophen overdose is the leading cause of acute liver failure (ALF) and drug related toxicity in the United States. In severe cases with ALF, liver transplantation (LT) may be life-saving. Contemporary data on trends of hospitalizations for acetaminophen overdose, its associated outcomes and utilization of liver transplant for this diagnosis have not been studied. **Methods:** We utilized the Nationwide Inpatient Sample database for years 2008-2012 to identify all patients ≥ 18 years of age admitted with a diagnosis of acetaminophen overdose using International Classification of Diseases, Ninth Edition, Clinical Modification (ICD-9-CM). A retrospective analysis of demographic and outcomes data was performed and temporal trends for outcomes of interest were examined. **Results:** Of the 194,182 admissions for acetaminophen overdose, 63.6% were due to suicidal overdose and 20.8% were due to accidental overdose. Mean age was 38.07 ± 15.61 years, with 65.5% females and 72.9% white patients. Suicidal use decreased from 65.3% to 62.4% ($p < 0.001$), whereas accidental overdose increased from 19.2% to 22% ($p < 0.01$). There was an increase in in-hospital mortality from 1.5% to 2.2% during the study period ($p=0.02$) accompanied by an increase in the Incidence of ALF from 6.6% to 8.5% ($p < 0.001$). Older age ($p < 0.001$; OR 1.04), prior history of liver disease ($p < 0.001$; OR 1.30) and admission to a teaching hospital ($p < 0.001$; OR 2.09) were Independent predictors of ALF. LT rates did not change significantly from 2008 (0.1%) to 2012 (0.1%). Female

sex (p=0.003; OR 4.44), admission to a teaching hospital (p < 0.001, OR 15.26) and hepatic coma (p < 0.001; OR 3.13) were independent predictors of LT. Increasing age (p < 0.001; OR 0.94), history of alcohol abuse (p < 0.001; OR 0.27), history of drug abuse (p=0.002; OR 0.35), history of psychiatric disorder (p=0.01; OR 0.44), medicaid as primary payer (p=0.002; OR 0.38) and Hispanic race (p=0.03; OR 0.25) were independent negative predictors of ALF. No regional differences were found in LT rates across the country. Conclusion: Acetaminophen overdose continues to account for a large number of hospital admissions. Incidence of accidental overdose was noted to increase during the study period despite increased public awareness. Mortality and incidence of acute liver failure from acetaminophen overdose have increased while the rates of liver transplantation have remained unchanged.

Sheehan JP, Cohen-Inbar O, Ruangkanhasetr R, Bulent Omay S, Hess J, Chiang V, Iorio-Morin C, Alonso-Basanta M, Mathieu D, **Grills IS**, Lee JYK, Lee CC and Lunsford LD (2015). "Post-radiosurgical edema associated with parasagittal and parafalcine meningiomas: A multicenter study." Journal of Neuro-Oncology 125(2): 317-324.

[Full-Text](#)

Department of Radiation Oncology

Stereotactic radiosurgery (SRS) offers a high degree of tumor control for benign meningiomas. However, radiosurgery can occasionally incite edema or exacerbate pre-existing peri-tumoral edema. The current study investigates the incidence, timing, and extent of edema around parasagittal or parafalcine meningiomas following SRS. A retrospective multicenter review was undertaken through participating centers in the International Gamma Knife Research Foundation (previously the North American Gamma Knife Consortium or NAGKC). All included patients had a parafalcine or parasagittal meningioma and a minimum of 6 months follow up. The median follow up was 19.6 months (6–158 months). Extent of new or worsening edema was quantitatively analyzed using volumetric analysis; edema indices were longitudinally computed following radiosurgery. Analysis was performed to identify prognostic factors for new or worsening edema. A cohort of 212 patients comprised of 51.9 % (n = 110) females, 40.1 % upfront SRS and 59.9 % underwent adjuvant SRS for post-surgical residual tumor. The median tumor volume at SRS was 5.2 ml. Venous sinus compression or invasion was demonstrated in 25 % (n = 53). The median marginal dose was 14 Gy (8–20 Gy). Tumor volume control was determined in 77.4 % (n = 164 out of 212 patients). Tumor edema progressed and then regressed in 33 % (n = 70), was stable or regressed in 52.8 % (n = 112), and progressively worsened in 5.2 % (n = 11). Tumor location, tumor volume, venous sinus invasion, margin, and maximal dose were found to be significantly related to post-SRS edema in multivariate analysis. SRS affords a high degree of tumor control for patients with parasagittal or parafalcine meningiomas. Nevertheless, SRS can lead to worsening peritumoral edema in a subset of patients such as those with larger tumors (>10 cc) and venous sinus invasion/compression. Long-term follow up is required to detect and appropriately manage post-SRS edema. © 2015, Springer Science+Business Media New York.

Siegel MJ and Condon GP (2015). "Single suture iris-to-capsulorhexis fixation for in-the-bag intraocular lens subluxation." Journal of Cataract and Refractive Surgery 41(11): 2347-2352.

[Full-Text](#)

Department of Ophthalmology

We present a simplified modification to a technique for early or mild in-the-bag subluxation that avoids conjunctival and scleral incisions and minimizes intraocular manipulation. While the capsulorhexis edge is grasped with an intraocular forceps to stabilize the IOL-capsular bag complex, a 10-0 polypropylene suture on a long curved needle is used to secure the fibrotic superior capsulorhexis edge to the midperipheral iris at 12 o'clock using a combination of a modified McCannel suture and a Siepser sliding knot. © 2015 ASCRS and ESCRS.

Simon MR, Chervin SM and Brown SC (2015). "Addendum to: Polyclonal Antibody Therapies for Clostridium difficile Infection (vol 3, pg 272, 2014)." Antibodies 4(3): 278.

[Full-Text](#)

Department of Internal Medicine

Singh D, Manickam P, Manuballa V and **Cappell MS** (2015). "Biliary ascariasis mimicking biliary sludge on abdominal ultrasonography: Diagnosis and worm extraction by snare during side-viewing endoscopy at ERCP." [American Journal of Gastroenterology](#) 110(Sup 1): S60-S61.

[Request Form](#)

Department of Internal Medicine

Introduction: Biliary ascariasis is a common parasitic infection in tropical countries, but is relatively rare in the United States. Common clinical presentations include biliary colic, acute cholangitis, acute cholecystitis, acute pancreatitis, or hepatic abscesses. A case is reported of the worm producing abnormal liver function tests, mimicking biliary sludge on abdominal ultrasound, and being successfully extracted during endoscopic retrograde cholangiopancreatography (ERCP). Case report: A 53-year-old female, immigrant to the United States from Bangladesh with prior cholecystectomy, and biliary sphincterotomy for cholelithiasis presented complaining of progressive abdominal pain for one month. Physical examination revealed a soft, nontender abdomen. The leukocyte count=16,100/mm³, with 14,300/mm³ neutrophils, and no eosinophilia. The serum alkaline phosphatase= 321 U/L, aspartate aminotransferase=428 U/L, alanine aminotransferase=232 U/L, total bilirubin= 1.5 mg/dl, and direct bilirubin=0.7 mg/dl. Serologies for viral hepatitis were all negative. Smooth muscle antibody, anti-mitochondrial antibody, celiac disease screen, and stool for ova and parasites were all negative. Abdominal ultrasound revealed a mildly dilated common bile duct (CBD) measuring 9 mm, containing a long segment, non-shadowing, echogenic material thought to represent sludge (Figure 1). Abdominal computed tomography and magnetic resonance cholangiopancreatography revealed extrahepatic dilatation attributed to the prior cholecystectomy. Endoscopic viewing before cannulation during ERCP revealed a curvilinear projection from the ampulla initially interpreted as a biliary stent. Closer examination showed the projection was a 12-cm-long nematode projecting from the ampulla (Figure 2), which was completely removed by snare. After cannulation, the CBD measured 10 mm in diameter. Sequential balloon pull-through resulted in extracting biliary sludge. Final occlusion cholangiogram did not reveal any residual filling defects. An expert parasitologist identified the nematode as an adult *Ascaris lumbricoides*. Patient was treated with one dose of albendazole 400 mg administered orally. The abdominal pain rapidly resolved and the liver function tests rapidly decreased towards normal before discharge. Discussion: This case report emphasizes that biliary ascariasis should be considered in the differential of chronic abdominal pain and abnormal liver function tests in patients from endemic regions, that the worm may mimic biliary sludge during abdominal ultrasound, and that it may be diagnosed and treated by ERCP. (Figure Presented).

Singh D, Sage R, **Amin M** and **Cappell MS** (2015). "Isolated GI aspergillosis presenting as dysphagia from an esophageal ulcer in an immunocompetent host." [American Journal of Gastroenterology](#) 110(Sup 1): S242.

[Request Form](#)

Department of Pathology

Department of Internal Medicine

Introduction: Isolated gastrointestinal (GI) aspergillosis is relatively rare, with all reported patients having underlying immunosuppression, from profound neutropenia, stem-cell or solid-organ transplantation, AIDS, or chronic granulomatous disease. A case is reported of isolated aspergillosis in an esophageal ulcer in an immunocompetent patient. Case Report: A 52-year-old-man with a history of hypertension, GERD, alcoholism, and COPD, presented with dysphagia and 10 kg weight loss, pharyngitis, and productive cough for 2 weeks. Physical examination revealed pharyngeal erythema, coarse crepitations in the lung fields bilaterally, and a normal abdominal examination. The leukocyte count=14.4 bil/L, Hg=8.9 g/dl, and creatinine=2.07 mg/dl. Chest x-ray revealed multilobular pneumonia. Nasopharyngeal swab revealed RSV. Chest MRI revealed circumferential distal esophageal thickening. EGD revealed a cratered, clean-based, benignappearing, 25-mm-wide, distal esophageal ulcer. Histopathology of ulcer biopsies demonstrated active esophagitis and superficial fungal organisms. A Gomori silver stain revealed true-septated hyphae with acute angle branching, highly consistent with *Aspergillus* (Figure 1). Barrett's esophagus was also identified. Patient had no known malignancy and was HIV seronegative. *Aspergillus* galactomannan antigen was negative. He was treated with IV levofloxacin and then discharged to receive oral levofloxacin for suspected community-acquired pneumonia. Patient was discharged with oral omeprazole 40mg twice daily for 8 weeks.

As per infectious disease and patient's wishes, the patient was not administered antifungal therapy because the aspergillus was believed to represent superficial ulcer colonization. Chest x-ray and CT did not reveal evident pulmonary aspergillosis. Repeat EGD 4 months later showed a healed ulcer. Histology revealed no inflammation and no fungal organisms on special stains. Fungal culture was sterile. Discussion: This case of isolated esophageal aspergillosis in an immunocompetent patient represents the first case reported in the GI literature. The GI tract may represent a portal of entry for Aspergillus. Ulcer resolution with no aspergillus detected on repeat EGD with biopsies without antifungal treatment may indicate transient colonization in patients with underlying predisposing conditions, such as esophageal ulcer from GERD. Finding isolated esophageal aspergillosis in immunocompetent hosts may represent transient colonization not requiring antifungal therapy.(Figure Presented).

Smillie RP, **Shetty M, Boyer AC**, Fafri SZ and Madrazo B (2015). "Re: Abernethy malformation." *Radiographics* 35(5): 1623-1624.

[Request Form](#)

Department of Diagnostic Radiology and Molecular Imaging

Stueck AE, **Qu Z**, Huang MAY, Campreciós G, Ferrell LD and Thung SN (2015). "Hepatocellular carcinoma arising in an HNF-1 α -mutated adenoma in a 23-year-old woman with maturity-onset diabetes of the young: A case report." *Seminars in Liver Disease* 35(4): 444-449.

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Department of Pathology

Hepatocyte nuclear factor-1 α mutated hepatocellular adenomas (H-HCA) are thought to have no to minimal malignant potential. This report describes a 23-year-old woman with maturity-onset diabetes of the young who developed a 12.5-cm hepatic mass with a radiographically and pathologically distinct 3.0-cm region. Histologically and immunohistochemically, the bulk of the mass was an H-HCA with extensive pseudoglandular formation and only focal steatosis. The 3.0-cm nodule showed small cell change, thickened hepatocyte plates, pleomorphic and hyperchromatic nuclei, reticulin loss, and stromal and vascular invasion, diagnostic of hepatocellular carcinoma (HCC). Immunohistochemically, increased expression of glutamine synthetase in tumor cells and CD34 expression in sinusoidal endothelial cells were seen in the HCC component. Nuclear expression of β -catenin, and exon 3 of CTNNB1 and TERT promoter mutations were absent in this case. Thus, we report a HCC arising in an H-HCA; although cases appear exceedingly rare, they reinforce the potential of H-HCA for malignant transformation. © 2015 by Thieme Medical Publishers, Inc.

Sura K, Ye H and **Grills IS** (2015). "Socioeconomic factors impact probability of receiving radiation as part of breast conserving therapy for early-stage breast cancer." *International Journal of Radiation Oncology Biology Physics* 93(3): E18.

[Full-Text](#)

Department of Radiation Oncology

Purpose/Objective(s): To analyze the potential impact of socioeconomic factors on the probability of patients receiving radiation therapy (RT) as part of breast conserving therapy (BCT) for low-risk early stage breast cancer. Materials/Methods: Data were extracted from the survival, epidemiology, and end result (SEER) database from 2000-2011 to include early stage breast cancer patients who met suitable criteria according to ASTRO accelerated partial breast irradiation (APBI) consensus guidelines. This included female patients with a history of breast cancer who underwent a lumpectomy, were at least 60y, and had a tumor 0-20 mm in size without positive lymph nodes. Patients were to be estrogen receptor positive and have had at least one regional lymph node removed. Multiple socioeconomic/demographic factors, including insurance status, age, race, degree of education, median family or household income and marital status, were analyzed with patients either receiving or not receiving RT using T-test or ANOVA. Survival was estimated using the Kaplan Meier method. Results: A total of 8620 patients fit the inclusion criteria. The median tumor size was 10 mm (2-20); a median of 2 nodes were examined. All cases were stage IA, and 100% were ER+ while 86% were PR+ and 11% were HER2+ or unknown. 52% were age 60-69y; 34.5% 70-79y and 13.5% at least 80y. 86.5% were white; 6.3% were black, 6.5% other, and 0.7% of unknown race. A majority of the data were from CA

(38.4%), NJ (10.8%), and GA (10.4%). 97.4% of patients had insurance; 0.7% were uninsured; and 1.9% insurance status was unknown. Median family income was \$73,230 (\$27,660-125,584). 6446 (75%) received some form of RT. 87% had external beam while 13% underwent APBI. Having health insurance had no impact on probability of RT receipt ($p = 0.30$). Age significantly impacted treatment with no RT given to 17%, 20%, 27%, 31%, 41% and 61% of those ages 60-64, 65-69, 70-74, 75-79, 80-84, and >85y respectively ($p < 0.001$). Marital status significantly impacted RT receipt with single, never married (28% no RT) and widowed (33% no RT) patients least likely to receive it (v married, divorced or separated 21% no RT, $p < 0.001$). Patients with at least a high school degree were more likely to receive RT ($p < 0.0001$) and having a bachelor's degree increased probability of APBI ($p = 0.013$). The median family income was higher in those receiving RT (\$73,770 v \$72,830, $p = 0.037$). Race was associated with RT receipt where 25% of whites, 30% of blacks and 22% of those with other races had no RT ($p < 0.001$). Race was predictive of APBI receipt with 14% of whites, 14% of blacks, and 6% of those with other races having APBI ($p < 0.001$). Conclusion: Multiple socioeconomic factors are associated with the probability of patients with early stage low-risk breast cancer receiving RT as part of BCT including income, age, educational level, and race. APBI was more likely given to highly educated patients.

Svider PF, Vong A, Sheyn A, **Bojrab DI, 2nd, Hong RS**, Eloy JA and Folbe AJ (2015). "What are we putting in our ears? A consumer product analysis of aural foreign bodies." *Laryngoscope* 125(3): 709-714.

[Full-Text](#)

Department of Surgery

OBJECTIVES/HYPOTHESIS: Rapid identification of foreign bodies may be crucial in deciding the appropriate course of action; and knowledge of consumer products that most commonly become aural foreign bodies (AFB) may potentially guide patient education strategies. Our objectives were to estimate the nationwide incidence of emergency department (ED) visits for consumer products presenting as AFBs and describe products encountered, demographic trends, general outcomes, and other reported aspects of injury.

METHODS: The authors searched the National Electronic Injury Surveillance System for AFB ED visits from 2008 to 2012. Consumer product, patient demographics, and outcomes were analyzed. RESULTS: There were 9,472 case entries amounting to an estimated 280,939 ED visits for AFBs. Of these, 49.3% of patients were male and 50.7% were female, with 98.2% of all patients being treated/examined and then released. Jewelry was the most common foreign body (39.4%), followed by cotton swabs/first aid equipment, paper products, pens/pencils, and desk supplies. Children between 2 and 8 years of age were most commonly affected, with jewelry as the most common item. Cotton swabs/first aid equipment predominated among adults.

CONCLUSIONS: Aural foreign bodies considerably affect health care expenditures; over 250,000 ED visits over a 5-year span were noted. Age- and gender-specific patterns reported in this analysis can serve as a valuable adjunct for history taking and clinical examination. Jewelry products predominated among children, while cotton swab/first aid products, hearing aids, and other ear-specific accessories significantly affected adults. Although children were most commonly affected, these findings highlight the need for sustained education and prevention strategies among all age groups.

Swor RA, Qu L, Putman K, **Sawyer K**, Domeier R, Fowler J and Fales W (2015). "A probabilistic match of cardiac arrest patients in Michigan." *Annals of Emergency Medicine* 66(4): S6.

[Full-Text](#)

Department of Emergency Medicine

Study Objectives: Survival from out-of-hospital cardiac arrest (OHCA) is an important marker of the health of a community. Optimal survival requires ongoing quality improvement of both out-of-hospital and in-hospital care. However, there are no databases that collect data through the continuum of care for these patients. Probabilistic linkage is a public health statistical methodology used to link community and health care databases, which can be used to measure processes and outcomes. We evaluated this methodology to link databases for patients who sustained OHCA in Michigan. Methods: We performed a study to link two de-identified Michigan databases that captured data on cardiac arrest patients during the study period July 1, 2010-June 30, 2013. The Michigan EMS Information System (MI-EMSIS) is a database for emergency medical services (EMS)-treated patients in Michigan. During the study period, 80% of state EMS agencies

contributed data. The Michigan Inpatient Database (MIDB) collects demographic, diagnostic, and procedure data on all patients admitted to Michigan Hospitals. MI-EMIS was queried of all patients transported with a provider impression of "cardiac arrest." The MIDB was queried for all cases with a hospital discharge diagnosis of cardiac arrest (ICD-9=427.5) or ventricular fibrillation (ICD-9=427.41). Cases which were inter-hospital transfers, duplicate cases, those who did not survive to admission, or were age <18 were excluded. A series of probabilistically linked datasets were constructed using the query function of Microsoft Access, with patient age, sex, date of incident, and receiving hospital as key variables. Due to the potential for errors in EMS data entry, a series of matches were performed testing ranges of options for each variable (eg, date +/- 1 day). To assess match quality, we compared datasets to longstanding OHCA databases from 3 large counties (assumed gold standard). Sensitivity analyses, calculating sensitivities and positive predictive values (PPV), were performed comparing linked and gold standard datasets. Results: During the study period there were 33,080 OHCA obtained from MI-EMIS; 20,081 were excluded, leaving a total of 12,999 unique EMS cardiac arrest cases. There were 24,648 MIDB cardiac arrests. Comparison between datasets yielded sensitivities ranging from 59.3-80.3%, and PPVs from 71.8-80.6%. The matched dataset with the best performance characteristics yielded 3,493 matched EMS and MHA records, with an incidence of 11.8 admissions/100k population/year, a rate of 26.9% (3,493/12,999) patients surviving to hospital admission, and a survival to discharge rate of 31.8% (1110/3493). Conclusion: Probabilistic linkage between EMS and hospital de-identified data records using readily available software yielded a dataset that matched moderately well with existing county databases, and outcome results similar to published rates of OHCA survival. Datasets such as these may serve as a valuable resource as part of a comprehensive evaluation of EMS systems' patient care.

Thapa R, Galoforo S, Kandel SM, El-Dakdouki MH, Wilson TG, Huang X, Roth BJ and **Wilson GD** (2015).

"Radiosensitizing and hyperthermic properties of hyaluronan conjugated, dextran-coated ferric oxide nanoparticles: Implications for cancer stem cell therapy." *Journal of Nanomaterials* 11(6): 1-11.

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Department of Radiation Oncology

Cytotoxicity, radiosensitivity, and hyperthermia sensitivity of hyaluronan-mediated dextran-coated super paramagnetic iron oxide nanoparticles (HA-DESPIONS) were assessed in CD44-expressing head and neck squamous cell carcinoma (HNSCC) cell lines at clinically relevant radiation dose and temperatures. Low-passage HNSCC cells were exposed to HA-DESPIONS and cytotoxicity was assessed using MTT assay. Radiosensitizing properties of graded doses of HA-DESPIONS were assessed in both unsorted and CD44-sorted cells using clonogenic assay in combination with 2 Gy exposure to X-rays. Hyperthermia-induced toxicity was measured at 40°C, 41°C, and 42°C using clonogenic assay. Cell death was assessed 24 hours after treatment using a flow cytometry-based apoptosis analysis. Results showed that HA-DESPIONS were nontoxic at moderate concentrations and did not directly radiosensitize the cell lines. Further, there was no significant difference in the radiosensitivity of CD44 high and CD44 low cells. However, HA-DESPIONS enhanced the effect of hyperthermia which resulted in reduced cell survival that appeared to be mediated through apoptosis. We demonstrated that HA-DESPIONS are nontoxic and although they do not enhance radiation sensitivity, they did increase the effect of local hyperthermia. These results support further development of drug-attached HA-DESPIONS in combination with radiation for targeting cancer stem cells (CSCs) and the development of an alternating magnetic field approach to activate the HA-DESPIONS attached to CSCs. © 2015 Ranjeeta Thapa et al.

Thibodeau BJ, Fulton M, Fortier LE, Geddes TJ, Pruetz BL, Ahmed S, Banes-Berceli A, **Zhang PL, Wilson GD** and **Hafron J** (2015). "Characterization of clear cell renal cell carcinoma by gene expression profiling." *Urologic Oncology*. ePub Ahead of Print.

[Full-Text](#)

Department of Pathology

Department of Radiation Oncology

Department of Urology

OBJECTIVES: Use global gene expression to characterize differences between high-grade and low-grade

clear cell renal cell carcinoma (ccRCC) compared with normal and benign renal tissue. METHODS: Tissue samples were collected from patients undergoing surgical resection for ccRCC. Affymetrix gene expression arrays were used to examine global gene expression patterns in high- (n = 16) and low-grade ccRCC (n = 13) as well as in samples from normal kidney (n = 14) and benign kidney disease (n = 6). Differential gene expression was determined by analysis of variance with a false discovery rate of 1% and a 2-fold cutoff. RESULTS: Comparing high-grade ccRCC with each of normal and benign kidney resulted in 1,833 and 2,208 differentially expressed genes, respectively. Of these, 930 were differentially expressed in both comparisons. In order to identify genes most related to progression of ccRCC, these differentially expressed genes were filtered to identify genes that showed a pattern of expression with a magnitude of change greater in high-grade ccRCC in the comparison to low-grade ccRCC. This resulted in the identification of genes such as TMEM45A, ceruloplasmin, and E-cadherin that were involved in cell processes of cell differentiation and response to hypoxia. Additionally changes in HIF1alpha and TNF signaling are highly represented by changes between high- and low-grade ccRCC. CONCLUSIONS: Gene expression differences between high-grade and low-grade ccRCC may prove to be valuable biomarkers for advanced ccRCC. In addition, altered signaling between grades of ccRCC may provide important insight into the biology driving the progression of ccRCC and potential targets for therapy.

Thomas B, Yonekawa Y and **Trese MT** (2015). "Lens-sparing vitrectomy for stage 4A retinopathy of prematurity with retrolental adhesions: Surgical technique and 15-year follow-up." [Investigative Ophthalmology and Visual Science](#) 56(7): Ab 987.

[Request Form](#)

Department of Ophthalmology

Tonlaar NY, Galoforo S, **Krueger SA**, Cardenas PY, Ahmed S, Baschnagel AM, Wilson TG, **Grills IS, Krauss DJ, Chen PY, Marples B** and **Wilson GD** (2015). "Dual P13K/mTOR inhibition in combination with radiation in a murine model of head and neck squamous cell carcinoma." [International Journal of Radiation Oncology Biology Physics](#) 93(3): E526.

[Full-Text](#)

Department of Radiation Oncology

Purpose/Objective(s): EGFR and its downstream targets PI3K/Akt/ mTOR are activated in about 90% of HNSCC, making this pathway a prime candidate for targeted therapy. In this study, we investigated the biological interaction between radiation and PF-04691502 (PF-04) (a dual PI3K/mTOR inhibitor) and whether their combination could be an effective new treatment strategy. Materials/Methods: EGFR/PI3K/Akt/mTOR status was assessed in two low passage oral tongue tumor cell lines, UT-SCC-14 (UT14) and UTSCC- 15 (UT15), using RT-PCR and Western blotting. Both baseline and expression at 0.5,1,6, and 24 hrs after a single 4Gy dose RT were analyzed. MTT assays were used to establish growth inhibition and best timing of RT with PF-04 and clonogenic survival assays were used to assess the impact of PF-04 on survival in combination with RT. Subcutaneous xenografts were established in female NIH III HO mice (n=24, 6/group) using the UT14 cell line. Tumors grew to 200-400 mm³ before a sub-curative 30 Gy total dose (2 Gy/day 5 days a week) was delivered alone or with PF-04 (10mg/kg oral gavage 4 hrs post RT). The primary endpoint was tumor regrowth at 90 days post implantation. Results: In UT14 there was a 2 and 2.5-fold increase in Akt3 and EGFR expression respectively compared to normal tongue control and EGFR DNA copy number was 17. In UT15 there was a 3, 2, 2 and 8-fold increase in PI3K/mTOR/Akt3/Akt1 respectively and no changes in copy number. The IC50 concentrations for PF-04 were 0.1uM and 0.5uM for UT14 and UT15 respectively. 0.25uM PF-04 4hrs post RT produced the greatest reduction in cell viability versus RT alone, 70% to 20% and 90% to 40% in UT14 and UT15 respectively. Clonogenic survival assay did not demonstrate a significant interaction between RT and PF-04 but colonies were noticeably smaller in cells treated with PF-04 (alone or with RT). In general, EGFR expression was increased following 4 Gy RT in vitro while downstream targets PI3K/ Akt/mTOR were decreased. Protein expression mirrored the DNA results at baseline and post RT. In the UT14 in vivo flank tumor model at 67 days post implantation, RT+drug had significantly slower regrowth rate compared to control and drug alone (p=0.0003, 0.004 respectively). While post-treatment growth rate (-3.8 mm³/day vs 0.4 mm³/day) was slower but not significantly (p=0.13) in the RT+drug arm compared to RT alone, preliminary analysis of day 60-67 regrowth rate (final comparison at 90 days) showed a significant difference,

-3.3mm³/day vs 26mm³/day respectively (p=0.011). Conclusion: The data show differences in the EGFR / PI3K/Akt/mTOR pathway between the two cell lines and a differential sensitivity to both radiation and PF-04691502 and their combination. Preliminary data from in vivo experiments show that the combination of these agents may be an effective therapy.

Tufaro AP, Azoury SC, Crompton JG, Straughan DM, Reddy S, Prasad NB, Shi G and **Fischer AC** (2015). "Rising incidence and aggressive nature of cutaneous malignancies after transplantation: An update on epidemiology, risk factors, management and surveillance." *Surgical Oncology* 24(4): 345-352.

[Full-Text](#)

Department of Surgery

Although immunosuppression has been a key component to the success of solid-organ transplantation, the morbidity associated with long-term immunosuppression remains a substantial burden, particularly as recipients of transplants live longer. Indeed, malignancy is one of the most common reasons for mortality following transplantation and the most common of these cancers are cutaneous in origin. Recently, the incidence of these malignancies has been on the rise, partly due to the fact that recipients of these transplants are living longer as a result of improvements in surgical technique, immunosuppression and perioperative management. Although there have been initiatives to increase awareness of cutaneous malignancies following transplantation, such programs are not standardized and there continues to be gaps in skin cancer education and post-operative surveillance. This review provides an update on the epidemiology, risk factors, clinical management, prevention and surveillance of cutaneous malignancies.

Van Laere L, Cuttler N and **Spigelman A** (2015). "The effect of donor graft thickness in descemet stripping automated endothelial keratoplasty surgery." *Investigative Ophthalmology and Visual Science* 56(7): Ab 1563.

[Request Form](#)

Department of Ophthalmology

Vilchez G, Chelliah A, Bratley E, **Bahado-Singh R** and Sokol R (2015). "Decreased risk of prematurity after elective repeat cesarean delivery in Hispanics." *Journal of Maternal-Fetal & Neonatal Medicine* 28(2): 141-145.

[Request Form](#)

Department of Obstetrics and Gynecology

BACKGROUND: The current recommendation is to delay elective repeat cesarean deliveries (ERCD) until 39 weeks to decrease prematurity risks. Prior reports suggest accelerated maturity of fetuses according to race (African-Americans and Asians). OBJECTIVE: To analyze the effect of the Hispanic ethnicity on the prematurity risk after ERCD. METHODS: The US Natality Database from 2004 to 2008 was reviewed. Inclusion criteria were singleton delivery, no trial of labor, repeat cesarean. Exclusion criteria were fetal anomalies, history of diabetes/hypertension related disorders. Outcomes analyzed were Apgar score, assisted ventilation, intensive care admission, surfactant/antibiotic use and seizures. Two groups were identified: non-Hispanic Whites (NHW) and Hispanic Whites (HW). Regression analysis was performed to calculate adjusted odds ratios. Deliveries at 36-40 weeks were studied with 40 weeks as the reference group. RESULTS: A total of 930421 ERCDs were identified, 396823 NHW and 236733 HW. For NHW, the risk of prematurity was lower at 39 weeks. For HW, there was no difference in the risks of prematurity at/beyond 38 weeks. CONCLUSION: There appears to be accelerated maturity with no increase in prematurity risk at 38 weeks in HW delivered by ERCD. Ethnicity can be considered for patient counseling and decision making regarding optimal timing of elective interventions.

Vilchez G, Hoyos LR, Maldonado MC, Lagos M, Kruger M and **Bahado-Singh R** (2015). "Risk of neonatal mortality according to gestational age after elective repeat cesarean delivery." *Archives of Gynecology and Obstetrics*: 1-5. ePub Ahead of Print.

[Full-Text](#)

Department of Obstetrics and Gynecology

Purpose: Despite the well-known neonatal morbidity risks after elective cesarean deliveries performed before 39 weeks, there are scarce data regarding mortality risks. The objective of this study was to calculate the risk

of neonatal mortality after elective repeat cesarean delivery (ERCD) by gestational age. Methods: The Linked Birth–Infant Death Data Files from the Vital Statistics Data of the Center for Disease Control and Prevention of the U.S. from 2004 to 2008 were analyzed. Only ERCD cases were included. Early death (<7 days), neonatal death (<28 days), and infant death (<1 year) were evaluated. A logistic regression model was used to calculate odds ratios. Cases delivered at 37–41 weeks were studied with 40 weeks as reference. Results: A total of 483,052 cases were included for analysis. The distribution of rates and odds ratios for infant, neonatal and early death was U-shaped with the nadir at 39 weeks. There was a statistically significant increase in early death at 37 compared to 40 weeks' gestation [OR (95 % CI = 1.929(1.172–3.176)]. No statistical increase was found in any of the other mortality risks. Conclusion: There is an increased risk in early death with ERCD performed at 37 weeks. Our study provides evidence of neonatal harm beyond the reported morbidity risks. © 2015 Springer-Verlag Berlin Heidelberg

Volz NB, Fringer R, Walters B and Kowalenko T (2015). "Prevalence of horizontal violence among emergency attendings, residents, and mid-level providers." *Annals of Emergency Medicine* 66(4): S127.

[Full-Text](#)

OUWB Medical Student Author

Department of Emergency Medicine

Study Objectives: Horizontal violence (HV) in the workplace are acts perpetrated by health care workers against each other. These include bullying, verbal or physical threats, purposeful disruptive behavior, and other malicious behaviors. The purpose of this study is to investigate the prevalence of HV towards emergency department (ED) attendings, residents, and mid-level providers (MLPs). Previous research in HV has focused largely on nursing and not on physicians or MLPs in EDs. Methods: An electronic survey was sent to attendings (n=67), residents (n=25), and MLPs (n=24) in 3 unique emergency centers within a single multi-hospital medical system. Ninety-one (74.6%) individuals completed the survey. The survey was based on previously published surveys investigating the prevalence of HV behaviors in nursing. The survey consisted of 18 questions that asked participants to indicate with what frequency (never, once, a few times, monthly, weekly, or daily) they have witnessed or experienced a particular behavior in the last 12 months (Table). Results: Of the 91 respondents, 64.8% were men and 35.2% were women. Attendings represented 41.8%, residents 37.4%, and MLPs 19.8% of respondents. The results (Figure) indicate that the prevalence of HV behaviors ranges from 1.1% (Q18: physical assault) to 53.8% (Q3: asked to do tasks below competency). The most frequently reported behaviors include Q3, Q4 (being shouted at), Q1 (humiliated by co-worker), and Q5 (subjected to demeaning remarks). Fourteen of these behaviors were most prevalent in the attending cohort, 6 were most prevalent in the MLP cohort, and 3 of the behaviors were most prevalent in the resident cohort. Conclusion: Horizontal violence continues to be a problem with nursing and midlevel providers; however, data from this preliminary study suggests that HV is also prevalent among attendings and residents. (Table Presented).

Wang Y, Doshi M, Khan S, **Li W** and **Zhang PL** (2015). "Utility of iron staining in identifying the cause of renal allograft dysfunction in patients with sickle cell disease." *Case Reports in Transplantation* 2015(528792): 1-5.

[Full-Text](#)

Department of Pathology

Sickle cell nephropathy (SCN) is associated with iron/heme deposition in proximal renal tubules and related acute tubular injury (ATI). Here we report the utility of iron staining in differentiating causes of renal allograft dysfunction in patients with a history of sickle cell disease. Case 1: the patient developed acute allograft dysfunction two years after renal transplant. Her renal biopsy showed ATI, supported by patchy loss of brush border and positive staining of kidney injury molecule-1 in proximal tubular epithelial cells, where diffuse increase in iron staining (2+) was present. This indicated that ATI likely resulted from iron/heme toxicity to proximal tubules. Electron microscope confirmed aggregated sickle RBCs in glomeruli, indicating a recurrent SCN. Case 2: four years after renal transplant, the patient developed acute allograft dysfunction and became positive for serum donor-specific antibody. His renal biopsy revealed thrombotic microangiopathy (TMA) and diffuse positive C4d stain in peritubular capillaries. Iron staining was negative in the renal tubules, implying that TMA was likely associated with acute antibody-mediated rejection (AAMR, type 2) rather than

recurrent SCN. These case reports imply that iron staining is an inexpensive but effective method in distinguishing SCN-associated renal injury in allograft kidney from other etiologies.

Wang YC, **Hysell C**, **Alassi O** and **Amin M** (2015). "Abnormal epithelial proliferation: A new institution-specific terminology for worrisome intraductal proliferations warranting diagnostic excisional biopsy." [American Journal of Clinical Pathology](#) 144: A301.

[Request Form](#)

Department of Pathology

Wang YC, Zeng X and **Zhang PL** (2015). "Evaluating tumor affected zone between tumors and nonneoplastic renal parenchyma in nephrectomy specimens using CD133 immunohistochemical staining." [American Journal of Clinical Pathology](#) 144(Sup 2): A365.

[Request Form](#)

Department of Pathology

Wang-Flores H, Rogers A, Zamarripa A, **Levasseur K**, Benner C, **Cohen D**, Hoyle Jr JD, **Mahajan PV** and Stanley R (2015). "Variations in emergency department pediatric concussion discharge instruction practices." [Annals of Emergency Medicine](#) 66(4): S117-S118.

[Full-Text](#)

Department of Emergency Medicine

Department of Anesthesiology

Department of Diagnostic Radiology and Molecular Imaging

Study Objectives: To identify and describe practice variation in pediatric concussion discharge instructions among emergency medicine (EM) providers with and without additional pediatric training. Methods: We developed a case-based survey that varied by patient age and severity of concussion symptoms. Survey questions focused on discharge instructions regarding physical and cognitive rest (screen time, reading/studying, test taking, and returning to school). The survey was conducted at seven emergency departments (ED) in the Midwest including freestanding children's hospitals, community hospitals, and urgent care centers. Participants included pediatric and emergency medicine (EM) trained physicians grouped by EM trained only versus EM with any combination of pediatric training (pediatrics with pediatric emergency medicine (PEM) fellowship, EM with PEM fellowship, and combined EM/pediatrics). Providers with pediatric training only were excluded. Fisher's exact test was used to test the association between provider training and physical and cognitive restrictions stratified by age and severity. Results: The survey was distributed to 223 providers. We had an overall response rate of 71.3% (159/223). We found no statistically significant association between provider training and recommendations for physical rest. However, there was a significant association between provider training and some aspects of cognitive rest discharge instructions by age and severity. Providers with additional pediatric training more frequently restricted screen time and reading/studying. See Tables 1A and 1B. Conclusions: Provider type did not affect pediatric concussion discharge recommendations for physical rest. Pediatric training was associated with an increased restriction of screen time and reading/studying when compared with providers without additional pediatric training. (Table Presented).

Ward N, **Li W** and **Zhang P** (2015). "Myeloperoxidase is a sensitive staining to identify capillary endothelial injury of primary crescentic glomerulonephritis." [American Journal of Clinical Pathology](#) 144(Sup 2): A367.

[Request Form](#)

Department of Pathology

Waxweiler TV, Schubert LK, Diot Q, Castillo R, Castillo E, **Guerrero TM**, Gaspar LE, Miften M, Kavanagh BD and Vinogradskiy Y (2015). "Towards a 4DCT-ventilation functional avoidance clinical trial: Determining patient eligibility." [International Journal of Radiation Oncology Biology Physics](#) 93(3): E416-E417.

[Full-Text](#)

Department of Radiation Oncology

Purpose/Objective(s): A new and exciting form of functional imaging has been proposed using 4DCT data to create functional lung ventilation maps. 4DCT-ventilation provides functional information without the added dosimetric or monetary cost to the patient. Development of clinical trials is underway to use 4DCT-ventilation for thoracic functional avoidance with the idea that preferential radiation (RT) sparing of functional regions may decrease pulmonary toxicity. Prior to proceeding with clinical trials, studies are needed that assess and determine patient eligibility criteria for functional avoidance. For patients with homogenous lung function, there is no basis to preferentially spare any regions. Conversely, in patients with regionally variant lung ventilation, avoiding radiation to functional lung can be of benefit. The purpose of our work was to assess the percentage of stage III lung cancer patients that may be eligible for functional avoidance and develop clinical and quantitative inclusion criteria for clinical trials. Materials/Methods: From two institutions, 96 stage III lung cancer patients who underwent thoracic RT were retrospectively reviewed. 4DCT data sets, spatial registration, and a density-change based model were used to compute 4DCT ventilation maps. To assess eligibility, 3 investigators reviewed each 4DCT-ventilation map to reach a consensus on clinical defect presence. Quantitative metrics were developed to reflect the degree of ventilation obstruction and heterogeneity including an algorithm using the regional ventilation in each lung third and the ratio of ipsilateral to contralateral ventilation (I/C). The ability of the quantitative metrics to predict for observer defined defects was assessed using logistic regression and area under the curve (AUC). Results: Investigator-determined clinical ventilation defects were present in 66 patients (69%). AUCs were 0.83 ($p < 0.01$) and 0.72 ($p < 0.01$) for the regional ventilation and I/C respectively, suggesting that regional ventilation is the optimal quantitative method to assess ventilation defects. With a sensitivity of 85%, the regional ventilation algorithm identified 56 patients (59%) suitable for functional avoidance RT. Conclusion: 4DCT-ventilation functional avoidance clinical trials have great potential to reduce radiation toxicity. Our data suggest that ~70% of stage III lung cancer patients have significant ventilation defects and ~60% are suitable for 4DCT-ventilation functional avoidance. The development of clinical and quantitative inclusion criteria is essential to functional avoidance clinical trials. We present the first study to use 4DCT-ventilation to define patient eligibility for functional avoidance and develop metrics that will help guide patient inclusion criteria.

Weiner Y, Severson ML and Weiner A (2015). "Intraocular pressure 3 to 4 hours and 20 hours after cataract surgery with and without ab interno trabeculectomy." *Journal of Cataract and Refractive Surgery* 41(10): 2081-2091.

[Full-Text](#)

OUWB Medical Student Author

Purpose To evaluate intraocular pressure (IOP) immediately after cataract surgery with or without ab interno trabeculectomy (Trabectome) and whether trabeculectomy-related hyphema increases the risk for IOP spikes. Settings Private glaucoma practice. Design Retrospective interventional nonrandomized comparative chart review. Methods Intraocular pressure was measured 3 to 4 hours and 20 hours postoperatively. Results The combined group comprised 73 eyes of 73 patients and the cataract-only group, 75 eyes of 75 patients. The mean preoperative IOP was $15.8 \text{ mm Hg} \pm 3.6 \text{ (SD)}$ and $14.9 \pm 3.0 \text{ mm Hg}$, respectively ($P = .09$). In the combined group, the IOP decrease was significant at 3 to 4 hours ($P = .0003$) and 20 hours ($P = .0007$). In the cataract-only group, the IOP increased significantly ($P < .0001$ and $P = .0035$, respectively). The mean IOP was significantly lower in the combined group than in the cataract-only group at 3 to 4 hours ($12.8 \pm 5.9 \text{ mm Hg}$ versus $19.7 \pm 7.5 \text{ mm Hg}$) and 20 hours ($12.7 \pm 7.0 \text{ mm Hg}$ versus $17.2 \pm 5.9 \text{ mm Hg}$) (both $P < .0001$). Significantly fewer eyes in the combined group than in the cataract-only group had IOP spikes (overall, $P = .0077$; 3 to 4 hours, $P = .001$). Hyphema occurred in 35 eyes (47.9%) in the combined group; however, the IOP was similar with or without hyphema. Only 1 eye with an IOP spike in the combined group had hyphema. Conclusion Combining ab interno trabeculectomy and cataract surgery reduced short-term postoperative IOP and the incidence of IOP spikes despite the common hyphema. Financial Disclosure No author has a financial or proprietary interest in any material or method mentioned. © 2015 ASCRS and ESCRS.

Whitten A, Ogunyemi D, Betcher K, Nowakowski A and Qu S (2015). "What factors predict prolonged neonatal length of stay in term babies?" International Journal of Gynecology and Obstetrics 131(Sup 5): E462-E463.

[Full-Text](#)

Department of Obstetrics and Gynecology

Objectives: To determine the maternal demographic, obstetrical and intrapartum factors that may predict prolonged neonatal length of stay (LOS) with term delivery. Method: We obtained the obstetrical electronic records of over 8,000 term (>37 weeks) singleton neonates delivered in 2013 in our health system and analyzed the neonatal LOS using Chi-square, student T test and regression analysis as indicated. Results: There were 6791 valid neonatal LOS: the mean SD was 1.05 (0.21), and the median was 1.0 day. Prolonged LOS defined as >4 days occurred in 319 (4%). Prolonged neonatal LOS was significantly positively associated with maternal BMI, drug abuse, smoking, diabetes, hypertensive disorders, chorioamionitis, antepartum hemorrhage, second stage of labor duration and cesarean section, whilst being married and Asian ethnicity seem to be protective. Intrapartum treatment (antibiotics, antihypertensives and magnesium sulfate), umbilical blood gases and Apgar scores also showed significant correlations with prolonged neonatal LOS. Conclusions: Prenatal and medical complications, especially those requiring treatment during labor, seem to be associated with neonatal compromise, which leads to prolonged hospitalization of the newborn.

Williams GA (2015). "Staving off elimination of the global period." Retina Today 2015(November-December): 19-24.

[Request Form](#)

Department of Ophthalmology

Williams PT and **Franklin BA** (2015). "Incident diabetes mellitus, hypertension, and cardiovascular disease risk in exercising hypercholesterolemic patients." American Journal of Cardiology 116(10): 1516-1520.

[Full-Text](#)

Department of Internal Medicine

Exercise may be an important treatment for hypercholesterolemic patients, particularly in statin users who are at increased diabetes risk. We therefore used Cox proportional hazard analyses to compare running and walking dose (metabolic equivalent hours/day [MET-h/d]) to diabetes, hypertension, and cardiovascular disease (CVD) risk in hypercholesterolemic patients. There were 60 diabetic- and 373 CVD-related deaths during a 10.1-year mortality surveillance of 6,688 hypercholesterolemic patients. In addition, there were 177 incident nonfatal diabetes, 815 incident nonfatal hypertensions, and 323 incident nonfatal CVD events during a 6.4-year follow-up of 6,971 hypercholesterolemic patients who supplied follow-up questionnaires. Fatal and nonfatal diabetes risk decreased 26% ($p = 0.002$) and 19% ($p \leq 0.0001$) per MET-h/d, respectively, and relative to <1.07 MET-h/d decreased 35% ($p = 0.19$) and 55% ($p \leq 0.0001$), respectively, for 1.8 to 3.6 MET-h/d and 73% ($p = 0.02$) and 71% ($p \leq 0.0001$), respectively, for ≥ 3.6 MET-h/d. Fatal and nonfatal CVD risk decreased 8% ($p = 0.008$) and 3% ($p = 0.22$) per MET-h/d, respectively, and relative to <1.07 MET-h/d decreased 10% ($p = 0.45$) and 36% ($p = 0.008$) for 1.8 to 3.6 MET-h/d, respectively, and 37% ($p = 0.009$) and 26% ($p = 0.10$), respectively, for ≥ 3.6 MET-h/d. Incident hypertension risk decreased 4% ($p = 0.01$) per MET-h/d, and relative to <1.07 MET-h/d decreased 29% ($p = 0.002$) for 1.8 to 3.6 MET-h/d and 31% ($p = 0.001$) for ≥ 3.6 MET-h/d. In conclusion, running and walking for exercise lowers diabetes, hypertension, and CVD risk in hypercholesterolemic patients and should more than compensate for the purported 9% increase in diabetes risk from statin use. By preventing morbidity and mortality for a specific existing medical condition, some exercise expenses may qualify for flexible spending account expenditures in hypercholesterolemic patients when prescribed by a physician.

Wobb JL, Shah C, Jawad MS, Wallace M, **Dilworth JT, Grills IS**, Ye H and **Chen PY** (2015). "Comparison of chronic toxicities between brachytherapy-based accelerated partial breast irradiation and whole breast irradiation using intensity modulated radiotherapy." Breast 24(6): 739-744.

[Full-Text](#)

Department of Radiation Oncology

Purpose: Brachytherapy-based APBI (bAPBI) shortens treatment duration and limits dose to normal tissue. While studies have demonstrated similar local control when comparing bAPBI and whole breast irradiation

using intensity modulated radiotherapy (WBI-IMRT), comparison of late side effects is limited. Here, we report chronic toxicity profiles associated with these two treatment modalities. Methods: 1034 patients with early stage breast cancer were treated at a single institution; 489 received standard-fractionation WBI-IMRT between 2000 and 2013 and 545 received bAPBI (interstitial 40%, applicator-based 60%) between 1993 and 2013. Chronic toxicity was evaluated ≥ 6 months utilizing CTCAE version 3.0; cosmesis was evaluated using the Harvard scale. Results: Median follow-up was 4.6 years (range 0.1-13.4) for WBI-IMRT versus 6.7 years (range 0.1-20.1) for bAPBI ($p < 0.001$). Compared to WBI-IMRT, bAPBI was associated with higher rates of \geq grade 2 seroma formation (14.4% vs 2.9%, $p < 0.001$), telangiectasia (12.3% vs 2.1%, $p = 0.002$) and symptomatic fat necrosis (10.2% vs 3.6%, $p < 0.001$). Lower rates of hyperpigmentation were observed (5.8% vs 14.5%; $p = 0.001$). Infection rates were similar (3.3% vs 1.3%, $p = 0.07$). There was no difference between rates of fair (6.1% vs. 4.1%, $p = 0.30$) or poor (0.2% vs. 0.5%, $p = \text{NS}$) cosmesis. Mastectomy rates for local recurrence (3.1% for WBI-IMRT and 1.2% for bAPBI, $p = 0.06$), or for other reasons (0.8% and 0.6%, $p = 0.60$) were similar between groups. Conclusion: With 5-year follow-up, WBI-IMRT and bAPBI are associated with similar, acceptable rates of toxicity. These data further support the utilization of bAPBI as a modality to deliver adjuvant radiation in a safe and efficacious manner. (C) 2015 Elsevier Ltd. All rights reserved.

Wobb JL, Wallace M, **Chen PY**, Shah CS, Jawad MS, **Grills IS** and **Stromberg JS** (2015). "Outcomes of APBI patients according to factors not included in the astro consensus guidelines." [International Journal of Radiation Oncology Biology Physics](#) 93(3): E7-E8.

[Full-Text](#)

Department of Radiation Oncology

Purpose/Objective(s): Determining which breast cancer (BC) patients are suitable for accelerated partial breast irradiation (APBI) is ongoing. This study reports outcomes of APBI patients according to clinicopathologic factors not included in the current ASTRO consensus guidelines. Materials/Methods: Seven hundred fifty-nine patients who received APBI at our institution (N=215 interstitial, N=329 applicator-based, N=215 3D conformal) from 4/1993 to 9/2013 were stratified by ASTRO consensus groups (N=260 suitable, N=388 cautionary, N=111 unsuitable). The entire cohort was analyzed by non-consensus factors including menopausal status, race, personal history of BC, 1st-degree relative with BC, grade, progesterone receptor (PR), Her2 status, and adjuvant systemic therapy. Actuarial rates of local recurrence (LR), regional recurrence (RR), and contralateral BC failure (CLBF), were assessed using the Kaplan-Meier method. Results: Median follow-up was 7.6 years (0.1-20.0). Within the entire cohort, the majority of patients were white (90%; 6% African American (AA); 4% other), postmenopausal (89%), ER positive (88%), PR positive (74%), Her2 negative (93%), and grade 2 (48%; all $p < 0.001$). Endocrine therapy was given in 65% of cases ($p=0.05$) and chemotherapy in 14% ($p<0.001$). The table demonstrates 5- and 10-year LR rates, as well as univariate analysis (UVA) for factors predictive of LR. No factors were predictive for RR on UVA with the exception of grade 3 disease in all patients ($p=0.009$). Nothing was predictive for CLBF except personal history of BC in cautionary patients ($p=0.03$) and 1st-degree relative with BC in suitable patients ($p=0.05$), both demonstrating higher rates of CLBF. The use of chemotherapy in unsuitable patients decreased the rate of CLBF ($p=0.03$). Conclusion: These data suggest that other factors outside of the current ASTRO consensus guidelines should be considered in determining future guideline recommendations for early stage breast cancer patients treated with APBI.

Wolfe JD, Shah AR, Xi A, **Hassan TS**, **Faia LJ** and **Ruby AJ** (2015). "Efficacy of intravitreal dexamethasone implant in vitrectomized eyes with diabetic macular edema recalcitrant to anti-vascular endothelial growth factor therapy."

[Investigative Ophthalmology and Visual Science](#) 56(7): Ab 1767.

[Request Form](#)

Department of Ophthalmology

Wolfe JD, Shah AR, Yonekawa Y, Faran AA, Franklin MS, Abbey AM and **Capone A** (2015). "Receiver operating characteristic curve to predict anti-VEGF resistance in retinal vein occlusions and efficacy of Ozurdex." European Journal of Ophthalmology. ePub Ahead of Print.

[Request Form](#)

Department of Ophthalmology

PURPOSE: Current treatment paradigms for macular edema associated with retinal vein occlusions (RVO) often involve initial treatment with anti-vascular endothelial growth factor (VEGF) agents, then switching to intravitreal dexamethasone implant (IDI; Ozurdex, Allergan, Parsippany, NJ) for poor responders. However, many patients undergo multiple injections prior to being declared a nonresponder. We devised a method for prediction of poor anti-VEGF response after one injection, and show that these patients subsequently respond well to IDI. **METHODS:** This study is a retrospective consecutive interventional case series of patients with RVO receiving anti-VEGF agents that were switched to IDI. Patients were categorized as nonresponders to anti-VEGF agents (edema did not improve) or responders (edema improved, but switched to IDI for longer treatment duration). Receiver operating characteristics (ROC) curve analysis was used to determine cutoffs of reduction in central retinal thickness (CRT) to predict poor response to anti-VEGF treatment. **RESULTS:** Twenty-three patients met inclusion criteria. There were 14 nonresponders and 9 responders. The ROC curve analysis found that the maximal sensitivity and specificity in correctly identifying responders to anti-VEGF therapy was those with $\geq 25\%$ reduction in CRT 1 month after 1 anti-VEGF treatment (sensitivity 0.89, specificity 0.79, area under the curve 0.93). After IDI placement, anti-VEGF nonresponders showed significant improvement in visual acuity (VA) ($p = 0.02$) and CRT ($p = 0.01$). **CONCLUSIONS:** In patients with macular edema secondary to RVOs, a reduction in CRT by $\leq 25\%$, 1 month after 1 anti-VEGF injection, is predictive of poor response to anti-VEGF treatment. These patients may benefit from earlier conversion to IDI treatment, which in our study, resulted in improved VA and CRT.

Wood FO and **Abbas AE** (2015). "General considerations and etiologies of aortic stenosis," In Abbas AE (ed). Aortic Stenosis: Case-Based Diagnosis and Therapy. New York: Springer. pp: 1-20.

[Full-Text](#)

Department of Internal Medicine

The earliest descriptions of aortic stenosis are credited to Riverius in 1646 where he provided a clear-cut description of the observed pathological findings of calcified aortic valve cusps in association with weak and diminished peripheral pulses. Aortic stenosis was described again by Bonet in 1679, however, John Baptist Morgagni, professor of anatomy in the University of Padua, referred to aortic stenosis in 1761 and is credited in providing a brilliant description of an autopsy specimen of calcified aortic valve cusps found in a patient and suggested the valve was both stenotic and incompetent. In his description, he quoted a similar case described by Georgius Greiselius and he clarified the anatomical and pathophysiological features of acquired aortic stenosis. In 1806, Corvisart provided another impressive correlation of clinical and autopsy findings and in 1854, William Stokes provided yet another vivid description of the disease. This chapter will provide a general overview of aortic stenosis as well as a review of the common etiologies of aortic stenosis. © Springer-Verlag London 2015. All rights reserved.

Xie L and **Wu D** (2015). "Series FDG PET/CTS predict dedifferentiation of recurrent papillary thyroid carcinoma." Thyroid 25(S1): A245.

[Request Form](#)

Department of Diagnostic Radiology and Molecular Imaging

Dedifferentiation of thyroid cancers to anaplastic thyroid cancers (ATC) represents a severe development of the malignancy, as patients with ATC often have a very poor prognosis despite appropriate treatment. There is no imaging modality that would predict dedifferentiation of thyroid cancers. The patient was a 60-year-old female with completion thyroidectomy on 11/18/2008. Pathology revealed multifocal papillary thyroid carcinomas (PTC) involving both lobes, with the largest tumor of approximately 2 cm with extrathyroid extension only in the left lobe. There was no aggressive histology and no evidence of nodular metastasis. Postsurgical I-131 scan showed three small foci of uptake confined to the right thyroid bed, suspicious for remnants or metastasis, for which she was treated with 160 mCi of I-131 on 1/22/ 2009. One year later, I-131

scan under Thyrogen stimulation was negative, but stimulated thyroglobulin (Tg) was elevated to 120. First FDG PET/CT was performed on 9/21/2010, which revealed a single focus of uptake in the left thyroid bed with max SUV 8.8. The patient chose no treatment. On 4/13/2012, PET/CT demonstrated a mildly enlarged lesion with max SUV 13.1, but non-stimulated Tg was decreased to 4.1. Left neck dissection was done, followed by radiation. Pathology revealed recurrent PTC without evidence dedifferentiation. On 4/4/2013, PET/CT showed improvement with mild FDG activity in the left thyroid bed, with max SUV only 2.6, and non-stimulated Tg was non-detectable. However, PET/CT on 2/13/ 2014 showed a markedly enlarged left neck mass with max SUV of 25.7 (nearly ten times higher than the prior max SUV). In contrast, non-stimulated Tg was mildly elevated to 6.1. FNA revealed dedifferentiation of recurrent thyroid cancer to ATC. She passed away four months later despite chemotherapy. (Figure Presented).

Zaltz I (2015). "Surgical technique: Open reduction using the modified-dunn technique," In Nho SJ, Leunig M, Larson CM, Bedi A and Kelly BT (ed). Hip Arthroscopy and Hip Joint Preservation Surgery. New York: Springer. pp: 475-480.

[Full-Text](#)

Department of Orthopedic Surgery

The modified Dunn technique is the most comprehensive approach to managing femoral deformity and intra-articular damage associated with slipped capital femoral epiphysis. It is a technically demanding procedure that requires an understanding of the SCFE deformity, upper femoral vascular anatomy, and expertise performing the surgical dislocation. © Springer Science+Business Media New York 2015.

Zamdborg L, Lee KC, **Harris A, Doo F**, Gersten DB, **Grills IS** and **Robertson J** (2015). "Outcomes after neoadjuvant or definitive chemoradiation therapy for esophageal/gastroesophageal junction carcinoma." International Journal of Radiation Oncology Biology Physics 93(3): E180.

[Full-Text](#)

OUWB Medical Student Author

Department of Radiation Oncology

Purpose/Objective(s): To evaluate outcomes after neoadjuvant chemoradiation therapy followed by surgery (NCRT) or definitive chemotherapy (DCRT) for esophageal carcinoma. Materials/Methods: From 2006 to 2015, 123 patients underwent CRT at a single institution. Sixty-five percent (80) underwent DCRT, while 35% (43) underwent NCRT followed by surgery. The median age was 68 years (range, 27-92) but differed from DCRT & NCRT (73 vs 61, $p=1.15E-05$), indicating that younger patients were more likely to have surgery. Eighty percent were male, Twenty percent were female. Eighty percent were white, 5% AA, and 15% other. Disease grade (1/2/3 was 4%/25%/50%, not reported for 21%. Sixty-nine percent had adenocarcinoma histology, 24% squamous, 7% other. A total of 81.3% of tumors were located in the distal esophagus/GEJ. Clinical stage (AJCC 6) I/IIA/IIIB/IIIC/IVA (celiac nodal)/ TxN0M0 was 5%/21%/11%/39%/15%/9%. Sixty-nine percent underwent baseline EUS staging, 82% PET staging. Median weight loss prior to RT was 15 lbs (range, 0-100). Thirty-five percent (15) of NCRT patients had transhiatal esophagectomies, 44% (19) Ivor-Lewis, and 7% (3) McKeown. Twenty-one percent (9) were minimally-invasive. The median RT dose was 50.4 Gy (range, 14.4-66.6) in 28 (7-37) fractions. Eighty percent of DCRT patients received at least 50.4 Gy. Sixty-one percent of NCRT patients were treated daily to at least 50.4 Gy, while 30% had 45 Gy in 1.5 Gy BID fractions. Seventy-two percent of RT was delivered with 3DCRT, and 27% with IMRT. Multiple patient, treatment, and tumor characteristics had descriptive statistics calculated, compared between NCRT and DCRT with two-sample proportion, Student's t, and Mann-Whitney U tests. Effects on overall survival (OS), and freedom from local (FLR), locoregional (FLRR), and distant failure (FDM) were estimated with univariate Cox regression. Survival was compared between groups with log-rank tests. Results: Median follow-up for survivors was 67 mos (range, 7-387). Median OS for all patients was 2.2 y (0.2-12.7). In the DCRT group, median OS was 1.5 y (0.2-12.7), while it was 3.0 y for NCRT (0.3-11.9, $p=0.057$). 3-year OS, FLR, FLRR, FDM were 48%, 73%, 62%, and 70%, respectively. 3-year OS was 59% for NCRT, and 41% for DCRT. FLR, FLRR, and FDM rates were 71%, 58%, 69% for DCRT and 75%, 68%, and 59% for NCRT, respectively. Differences in recurrence-free rates were not statistically significant. The number of lymph nodes dissected was predictive for OS ($p=0.037$), but not the number positive for tumor ($p=0.39$). Conclusion: In this series, NCRT was associated with longer median and OS and improved FLRR when compared to DCRT for esophageal cancer.

Age, however, was a prominent factor for determining surgical candidacy. Extent of nodal dissection correlated with improved OS.

Zappia J and Pieper D (2015). "Treatment of labyrinthine disorders," In Larouere MJ, Babu SC and Bojrab DI (ed). Surgical Techniques in Otolaryngology-Head and Neck Surgery: Otologic and Neurotologic Surgery. Daryaganj: Jaypee Brothers Medical Pub. pp: 89-120.

[Request Form](#)

Department of Surgery

Zwaans BMM, **Chancellor MB** and **Lamb LE** (2015). "Modeling and treatment of radiation cystitis." Urology. ePub Ahead of Print.

[Full-Text](#)

Department of Urology

Radiation cystitis (RC) is a debilitating condition that, if not managed at an early stage, can have a major impact on the quality of life of a patient and can lead to severe hemorrhaging and even death. Current treatments are focused on arresting bladder hemorrhaging, but none are able to relieve other urological symptoms associated with cystitis. There is a strong need for in-depth studies using preclinical RC models to better understand the underlying disease progression and to test novel therapies. Here we review the most commonly used therapies for RC, novel treatment strategies, and the preclinical models used to date. © 2015 Elsevier Inc.

Zyczynski HM, Albo ME, Goldman HB, Wai CY, **Sirls LT**, Brubaker L, Norton P, Varner RE, Carmel M and Kim HY (2015). "Change in overactive bladder symptoms after surgery for stress urinary incontinence in women EDITORIAL COMMENT." Obstetrical and Gynecological Survey 70(11): 691-692.

[Full-Text](#)

Department of Urology