

**Introduction:** Intra-articular steroid injection (IASI) is commonly used in the emergency department for management of osteoarthritis (OA) symptoms. Hip IASI carries risks, such as avascular necrosis, and there is currently no reliable way to predict long-term response of a patient's OA to IASI. Ultrasound (US) conveniently assesses for active arthropathy by detecting effusion-synovitis, and x-ray (XR) is useful for visualizing bone-related changes. We investigated the extent that a response to hip IASI could be predicted from baseline OA patient clinical and physical features alongside US and XR imaging features. **Methods:** 97 consenting patients with symptomatic hip OA presenting for hip IASI were evaluated at baseline (XR and US) and again 8-weeks after IASI (US only). Self-reported pain (WOMAC), hip range of motion (ROM) were measured at baseline and follow up. On US images we quantified joint effusion and synovial thickening, i.e., "effusion-synovitis", by the bone-capsule distance (BCD) at the apex of the femoral head from outer femoral cortex to outer synovium. On XR, we measured minimum joint space width (cm) and Kellgren-Lawrence (K-L) Grade for osteophytes and sclerotic changes. **Results:** In our 97 patients (43 female) aged 28-87 years (mean 59 +/-13 years, K-L grades averaged 2.5 +/-1.5, and US BCD averaged 5.9 +/-2.0 mm. We performed multiple linear regression using age, sex, BMI, ROM of hip flexion, US BCD, radiographic joint space width and K-L grade against the dependent variable, change in WOMAC pain subscore ( $R = 0.587$ ,  $P = 0.002$ ). We compared the response predicted by this model to the actual change in WOMAC pain. At a threshold value of -20% for minimal clinically important difference, 35/97 patients were responders, and a 2x2 table gave 67% overall model predictive accuracy, 61% sensitivity, and 71% specificity. Likelihood ratio for a positive response (LR+) was 2.13. **Conclusion:** Combining radiographic information on structural damage, US information on active arthropathy, and demographics correctly predicted about two-thirds of the patients that would benefit from IASI after 8 weeks. A patient with hip OA that met our model criteria was more than twice as likely to respond to IASI. With further model refinement, effective, personalized evidence-based management of symptomatic hip OA is possible using XR and hip US, which could both be performed during an ER visit.

**Keywords:** osteoarthritis, injection, imaging

#### MP07

##### Office-based family physicians' use of point of care ultrasound for early pregnancy complaints

C. Varner, MD, S.L. McLeod, MSc, S. Hu, MD, E. Bearss, MD, A. Singwi, MD, S. Lee, MD, MSc, B. Borgundvaag, PhD, MD, Mount Sinai Hospital, Toronto, ON

**Introduction:** In Canada, family physicians (FPs) provide the majority of early pregnancy care. To receive a same day US, most patients will be sent to the emergency department (ED). FPs are starting to use point of care ultrasound (POCUS) for a variety of indications. The FaMOUS course was modeled after the Canadian Emergency Ultrasound Society (CEUS) ED Echo (EDE) curriculum and adapted with permission for FPs. The objective of this study was to assess the indications for POCUS use in early pregnancy and determine the diagnostic accuracy of POCUS performed by FPs following FaMOUS certification to detect intrauterine pregnancy (IUP) and fetal cardiac activity (FCA). **Methods:** This was a prospective, observational study conducted in 3 FP clinics from November 2015 to June 2016. Pregnant women <20 weeks gestational age who underwent a focused, transabdominal POCUS by a FaMOUS-certified FP using a handheld GE VScan were enrolled. FPs documented the presence or absence of IUP and FCA. The reference standard was radiologist-interpreted US performed after the FP POCUS.

FPs were surveyed to assess provider confidence using POCUS and perceived impact on clinical decision-making. **Results:** Of 253 eligible patients, 56 (22.1%) underwent POCUS. Of these, 50 (89.3%) had a radiologist-interpreted US following the office-based FP visit. POCUS was used for the following indications: 11 (19.6%) had vaginal bleeding, 5 (8.9%) had abdominal pain, 7 (12.5%) had both vaginal bleeding and abdominal pain, and the indication for 33 (58.9%) patients was unclear. All patients had a documented IUP, resulting in a sensitivity of 94.0% (95% CI: 83.5%, 98.5%) and 100% positive predictive value. FCA resulted in sensitivity of 82.9% (95% CI: 69.2, 92.4%) and specificity of 100% (95% CI: 29.2%, 100.0%). When surveyed, 100% of FPs were confident performing POCUS and reported POCUS had an overall positive impact on clinical practice. 75% agreed the use of POCUS decreased the need for urgent radiologist-interpreted US. **Conclusion:** Following a certification process modeled after the CEUS EDE curriculum, FPs used POCUS for both CEUS-defined indications and indications that were unclear. FPs trained in early pregnancy POCUS demonstrated excellent diagnostic accuracy identifying IUP and FCA. Future study should assess the clinical impact of office-based POCUS, including whether its use results in decreased ED visits for this patient population.

**Keywords:** point of care ultrasound, first trimester, women's health

#### MP08

##### What's the plan?: Improving ED patient discharge communication through patient-centred discharge handouts

J.N. Hall, MD, MSc, MPH, J.P. Graham, BSc(Hons), MSc, M. McGowan, MHK, A.H. Cheng, MD, MBA, University of Toronto, Toronto, ON

**Introduction:** Discharge from the Emergency Department (ED) is a high-risk period for communication failures. Clear verbal and written discharge instructions at patient-level health literacy are fundamental to a safe discharge process. As part of a hospital-wide quality initiative to measure and improve discharge processes, and in response to patient feedback, the St. Michael's Hospital ED and patient advisors co-designed and implemented patient-centred discharge handouts. **Methods:** The design and implementation of discharge handouts was based on a collaborative and iterative approach, including stakeholder engagement and patient co-design. Discharge topics were based on the 10 most common historical ED diagnoses. ED patient advisors and the hospital's plain language review team co-designed and edited materials for readability and comprehension. Process mapping of ED workflow identified opportunities for interventions. Multidisciplinary ED stakeholders co-led implementation, including staff education, training and huddles for feedback. Patient telephone surveys to every 25<sup>th</sup> patient presenting to the ED meeting the study inclusion criteria (16 years of age or older, directly discharged from the ED, speaks English, has a valid telephone number, and has capacity to consent) were conducted both pre- (June-Sept 2016) and post- (Oct-Dec 2016) implementation. **Results:** Stakeholder engagement and co-design took place over 10 months. Education was provided across one MD staff meeting, four RN inservices, and at monthly learner orientation. 44846 patients presented to the ED and 25600 met the study inclusion criteria. 935 surveys (response rate = 97%; declined n = 30) were completed to date. Pre-implementation (n = 467), 9.2% (n = 43) of patients received printed discharge materials and 71% (n = 330) understood symptoms to look for after leaving the ED. Post-implementation (n = 468), 44% (n = 207) of patients received printed discharge materials with 97% (n = 200) finding the handouts helpful and 82% (n = 385) understanding symptoms to look for after leaving the ED. **Conclusion:** Through the introduction of patient