INTRODUCTION: Osteoarthritis (OA) of the knee is a common pathology that is often treated surgically for definitive treatment for severe symptoms. Though total knee arthroplasty (TKA) has long been considered the gold-standard of treatment, unicompartimental knee arthroplasty (UKA) is fast becoming a technique of choice for OA that is isolated to a single compartment of the knee. The current evidence demonstrates that patients who receive UKA experience fewer complications compared to those after TKA. This makes UKA a potentially superior option for surgically high risk patients, with one subset of these patients being those who receive chronic anticoagulation therapy. However, there is a paucy of data related to the outcomes in these patients face after UKA. Therefore, the purpose of this study was to investigate the complications related to UKA in patients on chronic anticoagulation therapy.

METHODS: The IBM Commercial Claims and Encounters and Medicare Supplemental and Coordination of Benefit Databases were searched between 2009-2019 using the Current Procedural Terminology (CPT) code 27446 to identify patients who underwent UKA. Patients without a minimum of continuous enrollment 6 months before and after their UKA procedure and patients less than 18 years of age were excluded from analysis. National drug codes were used to identify patients who were prescribed warfarin, low molecular weight heparin (LMWH), and direct oral anticoagulants (DOACs). Patients with at least one prescription for these anticoagulant drugs filled within 6 months of surgery were placed into the chronic anticoagulation (CA) cohort and all others were placed into the non-anticoagulated cohort (NAC). Overall, the current evidence demonstrates that patients who received chronic anticoagulation therapy compared to non-anticoagulated cohort, including a higher Charlson Comorbidity Index (3.15 vs 2.84; P<0.001). Higher rates of anxiety (11% vs. 9.5%; P=0.017) and obesity (32% vs. 31%; P=0.002) were found in the NAC cohort (Table 1). Multivariate analysis showed significant differences at 90 days in SSI (OR 1.14; P=0.021), sepsis (OR 1.93; P=0.001), MUA (OR 1.54; P=0.001), peri-prosthetic fracture (OR 2.27; P<0.001), extended length of stay (OR 1.45; P<0.001), PE (OR 4.74; P<0.001), PNA (OR 1.28; P=0.020), and readmission (OR 1.27; P=0.006) (Table 2). The CA group also experienced significantly higher odds of PJI (OR 1.49; P<0.001), sepsis (OR 1.84; P=0.001), mechanical complications (OR 1.59; P<0.001), peri-prosthetic fracture (OR 2.51; P<0.001), and conversion to TKA (OR 1.75; P<0.001) at 2 year follow-up. Subgroup analysis investigating the influence of individual anticoagulant classes found patients receiving warfarin to be at increased risk of SSI, sepsis, mechanical complications, and MUA at 90 days. DOAC patients were at elevated risk of SSI, sepsis, and peri-prosthetic fracture at 90 days. Patients receiving LMWH were only at significant risk of MUA and hematomata at 90 days. For all anticoagulation subgroups, there was a significantly increased risk of PJI, sepsis, mechanical complications, peri-prosthetic fracture, and conversion to TKA at years 2 (Table 3).

DISCUSSION: Overall, the CA group experienced worse medical and surgical outcomes at both 90-days and 2-years compared to the NAC group. Future research should include prospective studies confirming these findings and exploring the effect of perioperative protocols on outcomes in this population.

SIGNIFICANCE/CLINICAL RELEVANCE: The paucity of literature surrounding outcomes in chronic anticoagulation patients prevents clinicians from making evidence-based decisions when delivering care. As such, clinical practice is improved by providing the first published data that physicians can use to understand the risks associated with performing UKAs on patients on chronic anticoagulant therapy.