Tracking Patient Reported Outcomes in Orthopaedic Surgical Patients at a Single Institution
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Introduction/Purpose: As the American healthcare system evolves into a value-based reimbursement model, emphasis on tracking and reporting healthcare outcomes has expounded. Patient reported outcome Measures (PROMs) are exceedingly valuable to orthopedists as a means to measure improvement and satisfy regulatory requirements. The NIH Patient-Reported Outcomes Measurement Information System (PROMIS) surveys are favored due to their accessibility, efficiency, and minimal floor and ceiling effects. Furthermore, they have been shown to predict outcomes after orthopedic surgeries. Psychosocial factors have also become increasingly important in predicting surgical outcomes. We aim to report the development and implementation of an institutional PRO data collection platform, including PRO completion rates and improvements in PROs for patients undergoing orthopaedic surgery.

Methods: We implemented a secure, HIPAA compliant, automated and EHR integrated, institutional platform to collect PROMs using a cloud-based tool. Patients undergoing surgery by sports medicine and foot and ankle surgeons were included and organized into four surgical pathways: (1) foot and ankle, (2) sports-knee, (3) sports-hip, and (4) sports-shoulder. PROMIS Physical Function (PF), PROMIS Pain interference (PI), site-specific (foot and ankle, knee, hip, and shoulder) Single Assessment Numeric Evaluation (SANE), and the brief resiliency scale (BRS) were collected at the patient's pre-operative visit. The PROMIS and SANE surveys were again collected at 3-, 6-, and 12-month post-operative visits. Surveys were disseminated automatically and patients were able to complete PROMs onsite on secure tablets or remotely through their personal device. Primary outcomes included compliance rates, baseline PRO scores, and change in scores at the various post-operative timepoints for patients in the four surgical pathways.

Results: More than 6,000 patients were included, with majority of patients from the sports-knee (47%), followed by sports-shoulder (27%), foot and ankle (23%), and sports-hip (4%) pathways. Average completion rate was highest at the pre-operative timepoint for all pathways (81%), with completion rates of 62% at 50% at 6 months and 45% at 12MO. Compliance rates were lowest highest in the foot and ankle pathway at 12 months (62%). Average baseline scores for all patients were 40.8 for PROMIS PF, 61.1 PROMIS PI, 41 SANE, and 3.9 for BRS. Baseline scores didn't significantly vary between the surgical pathways. Scores improved for all patient pathways at all timepoints for PROMIS PF, PI and SANE PROMs (Table 1). No workflow disruptions were noted for survey administration.

Conclusion: Tracking PROs using an automated platform is feasible in orthopaedic clinics. Compliance rates are very good and dependent on provider, staff, and patient buy-in. Patients undergoing surgery had an average baseline PROMIS PI scores >=1 standard deviation from the normal population and all scores improved after surgery. Importantly, statistical significance doesn’t always reflect minimum clinically important differences (MCIDs). MCIDs for PROMIS PF and PI have been reported to fall between 5-10 points depending on range of values and methods of calculation. Further investigation into outcomes by procedure type and patient factors is warranted to identify predictive factors of surgical outcomes.
Table 1: Changes in PROM scores from baseline to 3-, 6-, and 12-month post-operative visits in various surgical pathways.