

## **Education Increases Disposal of Unused Opioids After Total Joint Arthroplasty: A Cluster Randomized Trial**

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**Introduction:** The purpose of this study was to determine the impact of education on proper disposal rates of unused opioids.

**Methods:** Following IRB approval, 563 patients undergoing primary hip (183 patients) and knee (380 patients) arthroplasty were cluster randomized to receive no education (Group 1), educational pamphlets (Group 2), or educational pamphlets plus text messages (Group 3). Patients were cluster randomized by week to prevent sharing educational materials and blinded to participation in the study to avoid behavioral modifications. Patients were surveyed 6 weeks postoperatively to determine if they disposed of their unused opioid pills using an FDA recommended method. Assuming a 15% difference in opioid disposal rates as clinically relevant, a power analysis determined that 76 patients per group (228 total) with medication to dispose were required. An as-treated analysis was conducted with Fisher's Exact and ANOVA tests with  $\alpha=0.05$ .

**Results:** 539 (95.7%) patients completed the survey. 342 patients (60.1%) indicated that they had unused opioid pills at 6 weeks postoperatively; 89 patients in Group 1, 128 in Group 2 and 125 in Group 3. Of these 342 patients 9.0%, 32.8%, and 38.4% properly disposed of their unused opioids in Groups 1, 2 and 3 respectively ( $p<0.001$  for no education vs. either strategy with no difference between the two educational strategies). Unused opioid pills were kept by 82.0%, 64.1%, and 54.4% of patients in Groups 1, 2, and 3 ( $p<0.001$  for no education vs. either educational strategy). There were no differences between groups including daily inpatient opioid use, refill requirements, and preoperative opioid use other than gender (41.5%, 55.0% and 37.4% male;  $p=0.001$ ), suggesting appropriate randomization.

**Conclusions:** Education on proper opioid disposal more than triples the rate of proper opioid disposal compared to no education. Further innovation is warranted given the inadequate rates of disposal even with appropriate education.