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BACKGROUND

- Opioid use disorder (OUD) (DSM 5-TR™) from misuse of prescribed ± diverted opioid pain medications ± illicit opioids (heroin, fentanyl, etc) that results in chronic, relapsing illness, with significant morbidity and mortality.
- Persistent opioid use after surgery and in chronic pain management contribute to the risk of OUD.
- Medical student education about the risks of surgery and opioid medications provides a unique opportunity to prevent OUD.

OBJECTIVE

- To prevent and lower risks of OUD through medical student education, we advocate for team-based curriculum that provides comprehensive biopsychosocial approach with risk/benefit alternatives to opioid use in surgery.

METHODS

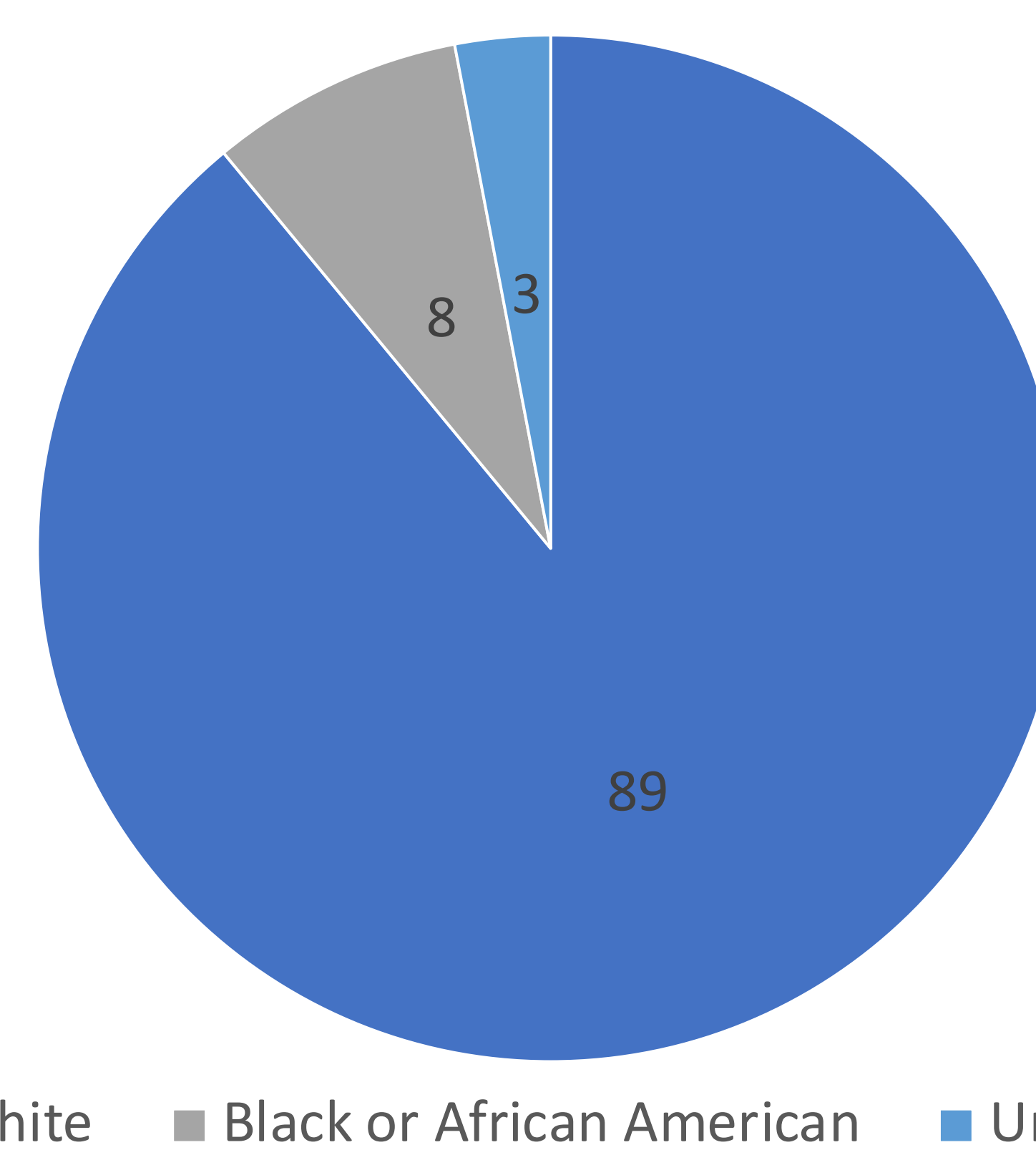
- We examined eleven elective surgical procedures in deidentified TriNETX database performed at Carilion Clinics between 2016-2023 to identify persons diagnosed with OUD post-surgery.
- Our study population comprised of 12,010 persons, ages 14 to 90 years, a majority identified as female and white, and reflected the Southwest Virginia populations served.

RESULTS

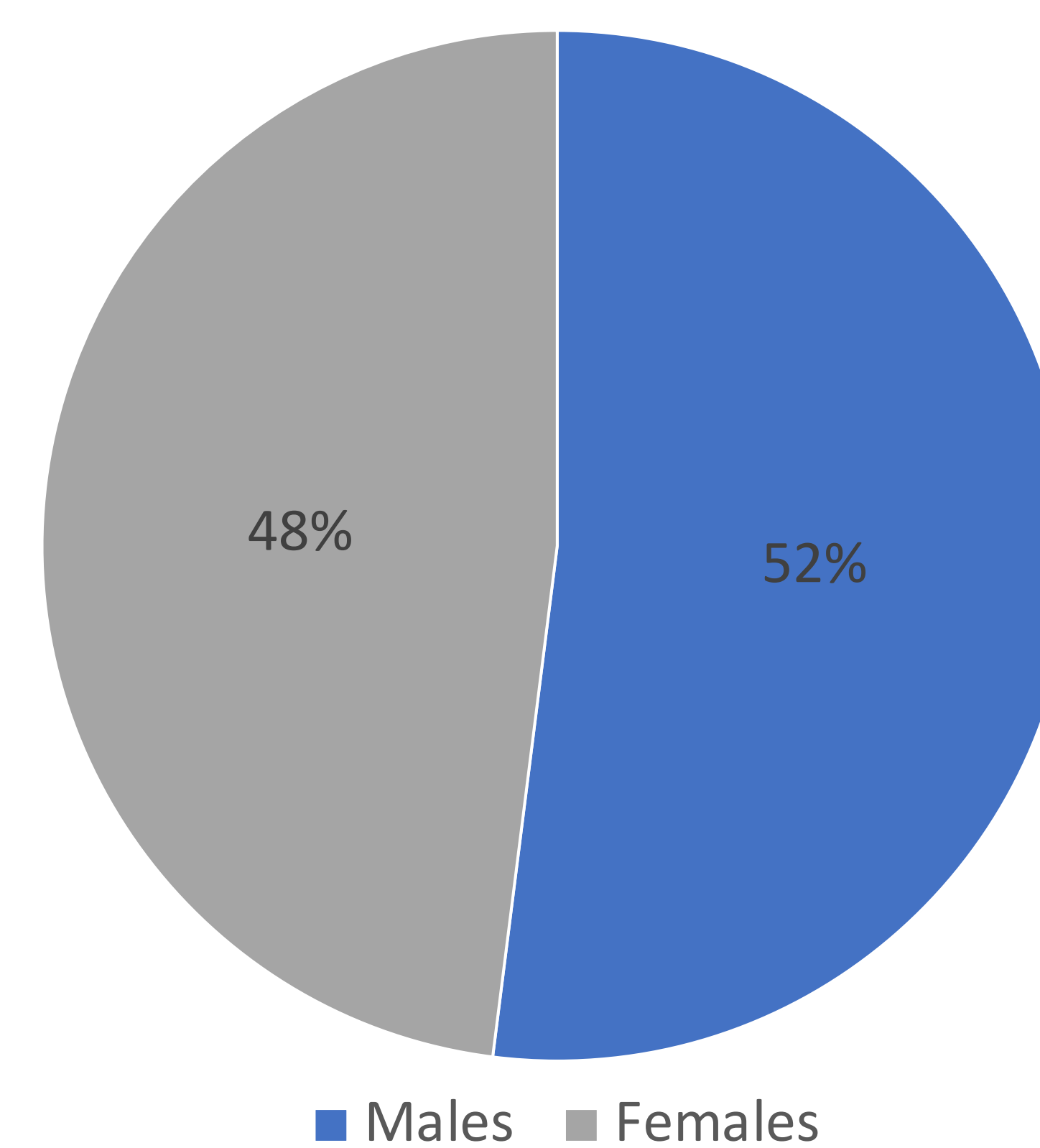
- Total of 57,830 persons underwent one of eleven elective surgeries.
- 1,530 previously had the diagnosis of OUD.
- Cesarean section recipients subsequently developed OUD at the highest percentage (6.38%) compared with simple mastectomy (1.08%).

RESULTS (cont.)

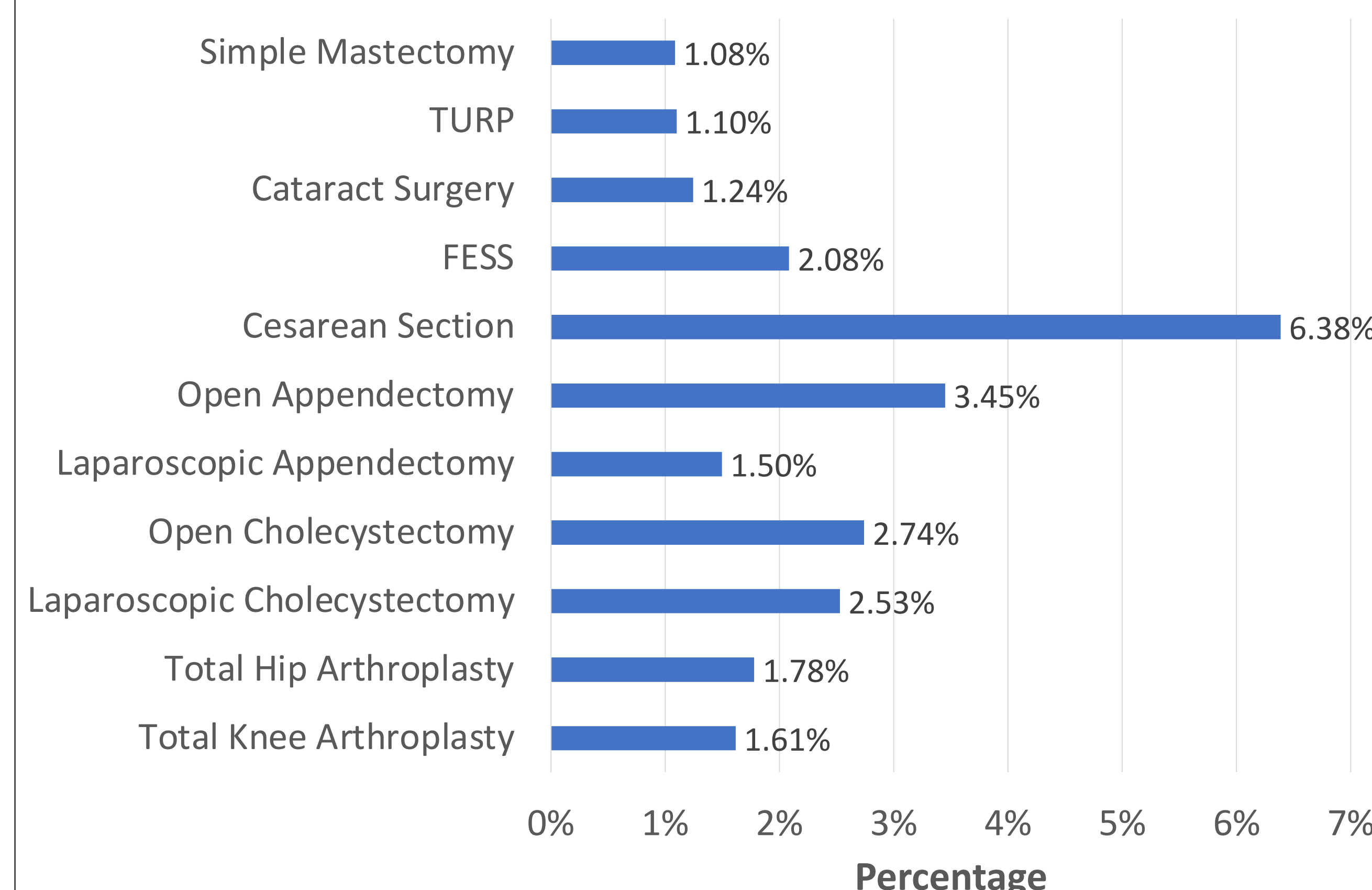
Racial Distribution Among Persons Diagnosed with OUD



Gender Distribution Among Persons Diagnosed with OUD



Percentage of Surgery Patients with OUD



CONCLUSION & FUTURE DIRECTIONS

- These data represent local risks of OUD following elective surgery.
- We propose to tailor medical education to include these real data to design team-based cases in surgical contexts where OUD risk increases over time.
- We propose to assess pre/post knowledge of opioid medications, indications, risks, benefits, and alternatives for acute and chronic pain management; moreover, we propose to explore the spectrum of pain, addictions, genetics, environment, and social determinants.
- We will review and compare our intervention to other evidence-based curriculums for medical students and allied health professionals, graduate medical education, and continuing medical education in literature.
- We hypothesize medical students will gain knowledge of risks and benefits of opioid exposure post-surgery to better identify early loss of control for opioid use and how to prevent and treat OUD.

REFERENCES & ACKNOWLEDGEMENTS

For the importance of educating medical students:

1. American College of Surgeons. (2023). American College of Surgeons addresses opioid prescription misuse with personalized patient education project. <https://www.facs.org/for-medical-professionals/news-publications/news-and-articles/press-releases/2023/american-college-of-surgeons-addresses-opioid-prescription-misuse-with-personalized-patient-education-project/>.
2. Patel, V., & Kalet, A. (2019). Why Are We Still Addicted to Opioids? A Medical Student Perspective on the Opioid Epidemic. *Teaching and Learning in Medicine*, 32(2), 205-209.
3. Estave, P. M., Jacobs, M. L., Rukstalis, M., et. al. 3rd (2021). Opioid stewardship training during the transition to residency to prepare medical students to recognize and treat opioid use disorder. *Substance abuse*, 42(4), 1040-1048. <https://doi.org/10.1080/08897077.2021.1915918>

For prolonged use after surgery:

1. Brat, G. A., Agniel, D., Beam, A., Yorkgitis, B., Bicket, M., Homer, M., ... & Larochele, M. R. (2018). Postsurgical prescriptions for opioid naive patients and association with overdose and misuse: retrospective cohort study. *The BMJ*, 348.
2. Clarke, H., Soneji, N., Ko, D. T., Yun, L., Wijeyesundera, D. N., (2014). Rates and risk factors for prolonged opioid use after major surgery: population based cohort study. *JAMA Surgery*, 149(10), 1042-1047.