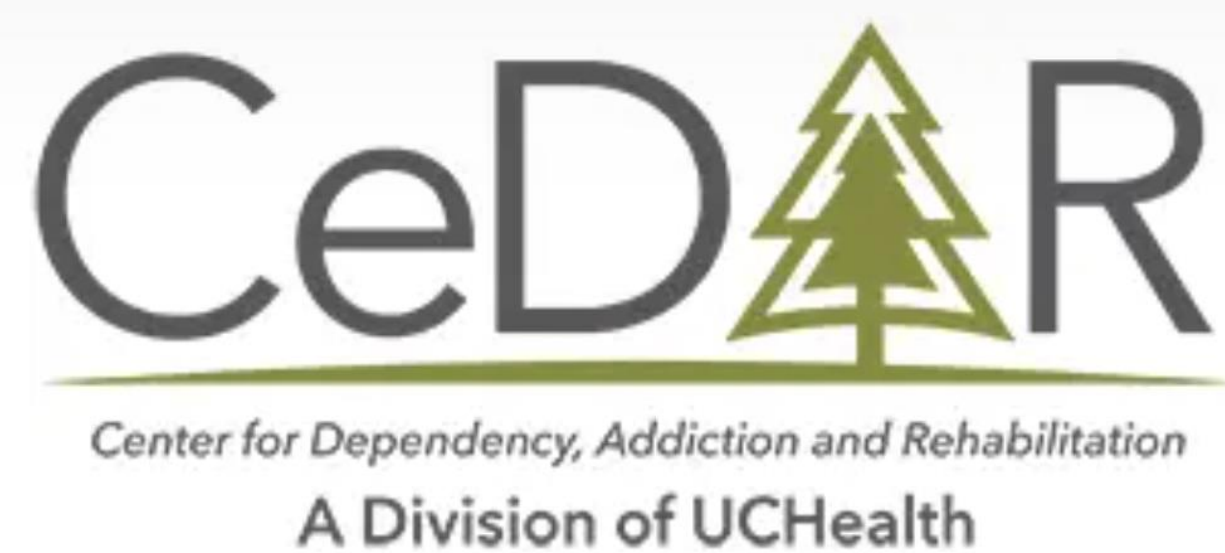


# Needle-Free Lidocaine Administration Before XR-BUP Decreases Patient Perceived Pain Scores



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## BACKGROUND

- Extended-release buprenorphine (XR-BUP, trade name Sublocade) is a once-monthly subcutaneous injection used to treat opioid use disorder (OUD), yet more than 5% of patients report experiencing significant pain at the injection site.
- Managing pain associated with XR-BUP administration is important, as it may contribute to treatment non-adherence and adversely affect patients' quality of life and overall care experience.
- The J-Tip device (fig. 1), which delivers lidocaine subcutaneously using pressurized CO<sub>2</sub> gas without a needle, has not yet been evaluated for its potential to reduce pain during XR-BUP injections.
- To assess its effectiveness, we compared patient-reported pain scores with and without lidocaine administered via the J-Tip device prior to XR-BUP injection.
- We hypothesized J-Tip administration of lidocaine before XR-BUP would decrease patient reported pain scores.**

## METHODS

- A total of 83 patients from the CeDAR clinic were asked to retrospectively report their perceived pain following XR-BUP administration without lidocaine and to report their current pain levels after receiving XR-BUP with lidocaine delivered via the J-Tip device.
- A standardized protocol consisting of 0.25mL of 1% Lidocaine was administered via the J-Tip device prior to XR-BUP (100mg or 300mg) administration.
- After treatment administration, each patient answered the following questions:
  - 1) On a scale from 0 to 10, what do you rate your pain when given Sublocade without the use of lidocaine?
  - 2) On a scale from 0 to 10, what do you rate your pain when given Sublocade with the use of lidocaine via J-TIP device?
- Pain scores were analyzed using a linear mixed-effects model to account for repeated measures and missing data.

## RESULTS

- Summary statistics for outcome measures are displayed in Table 1.
- Results from the linear mixed-effects model revealed a significant reduction in mean pain scores between retrospective pre- and post-test scores. ( $z = -15.6, p < 0.05$ ).
- On average, post-test pain scores were estimated to be 4.7 units lower than pre-test pain scores (95% CI: -5.28 to -4.1) (fig. 2).**

Figure 1: J-Tip Device

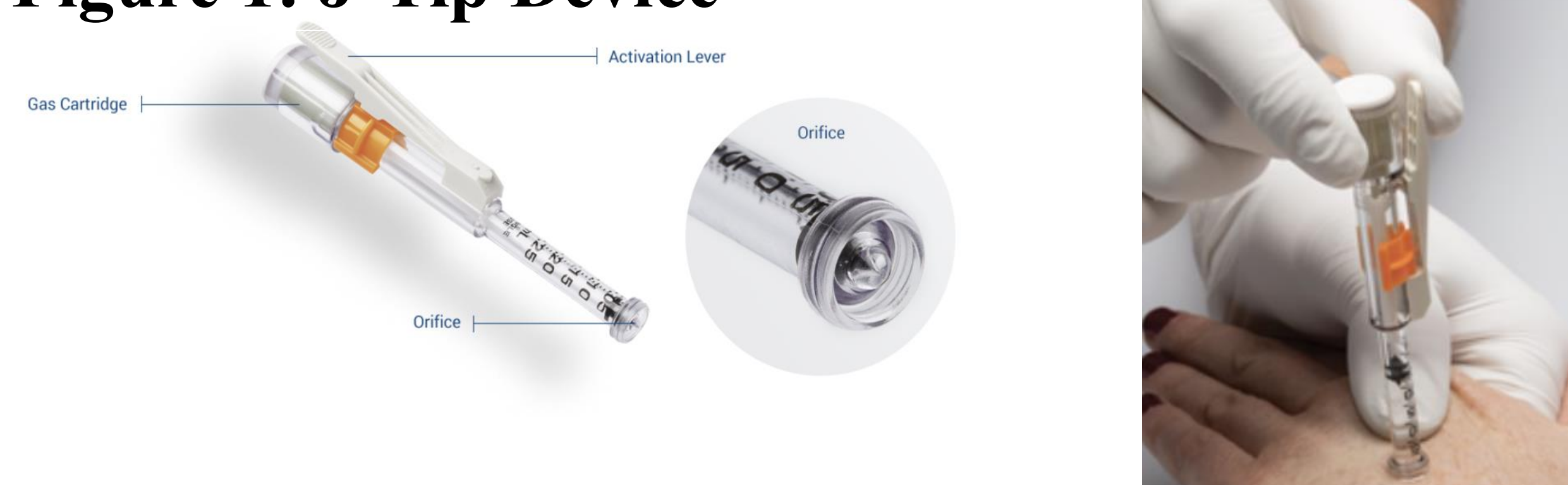
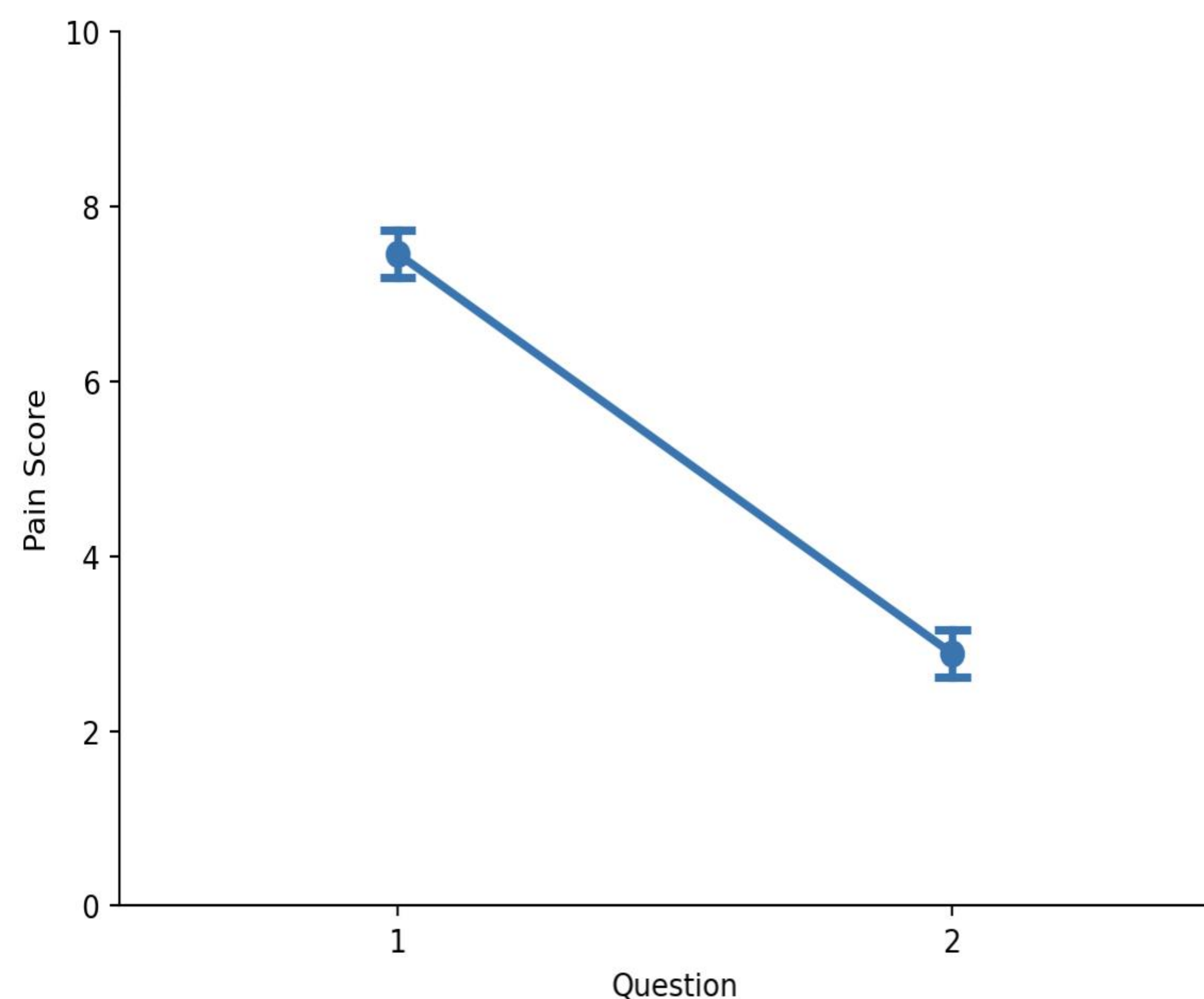


Table 1: Summary statistics

	N	Missing	Mean	SD
Q1	70	13	7.46	2.26
Q2	81	2	2.88	2.42

Figure 2: Mean Pain Scores (+/- SE)



## DISCUSSION

- Pre-treatment with lidocaine administered via the needle-free J-Tip device significantly reduced perceived pain scores during XR-BUP injections in our clinic sample.**
- Importantly, participants were asked to retrospectively report pain from prior XR-BUP injections without lidocaine, which may have introduced recall bias.
- Furthermore, demographic information was not collected. As a result, it is unclear to which populations these findings are generalizable.
- Future work can study whether reduced perceived pain is associated with improved treatment retention among individuals receiving XR-BUP in a design that overcomes recall bias limitation and adjusts for demographic information and XR-BUP dosages.
- Additional studies could compare the difference in pain scores pending XR-BUP administration site.

## CONCLUSION

- Administering lidocaine with the needle-free J-Tip device prior to XR-BUP injection improved patient comfort in our clinic and has the potential to enhance the overall treatment experience for individuals receiving XR-BUP.

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