

## Study Goals

- The estimated cost for treating Cleft lip and palate is approximately \$11,350 per case.
- Comprehensive treatment of this condition results in an abundance of operations and appointments, placing a significant financial burden on the patient, patient family, and healthcare system as a whole.
- We posit that employing buccal fat pad flaps (BFP) as vascularized soft tissue filler at the time of the initial palatoplasty into the posterior void created by palatal closure will reduce the likelihood of requiring subsequent speech surgeries and decrease the financial costs associated with cleft surgery (NBFP).

## Methods

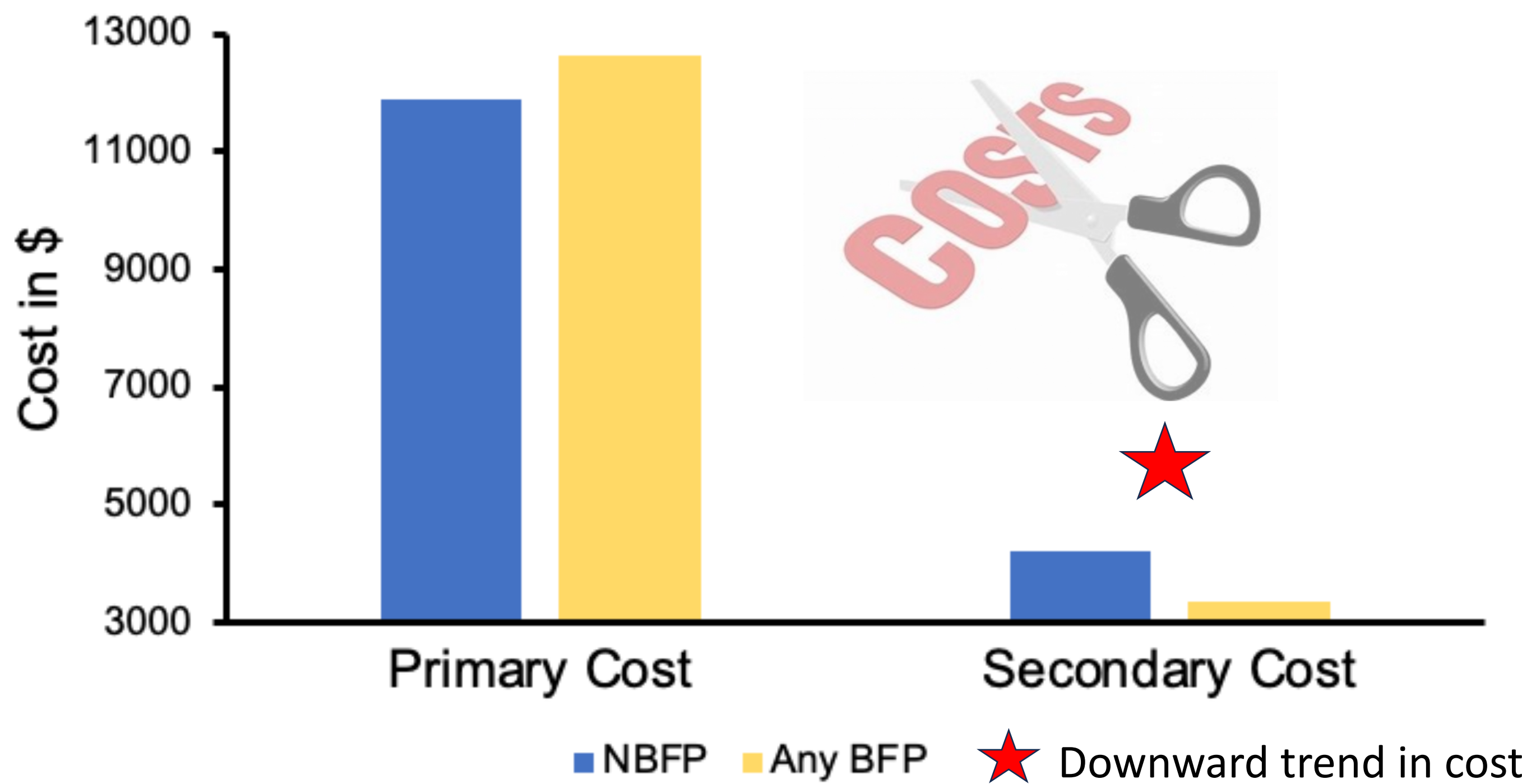
- Study Design:** A retrospective review study was designed and approved by the University of Michigan Institutional Review Board.
- Inclusion criteria:** Patients who underwent cleft palate repair between 1996 and 2022 by CPT codes using the Health System Data Warehouse Michigan Medicine Database.
- Analysis:** Patient characteristics (Veau classification, insurer, use of buccal fat pad as well as the quantity and placement of the fat pad, requirement of secondary procedures, ICU care) and cost of the procedures were examined. Financial variables included gross payments to the provider (facility and/or physician) and net payment as reported by the carrier. ANOVA in SPSS was utilized for statistical assessment.

**Table 1 Descriptive statistics**

Information about patient characteristics were compiled into the table depicted on the right. There was an even number of patients who underwent buccal fat pad placement compared to those who did not receive a BFP and relatively similar gender composition.

| Gender                        | n   |
|-------------------------------|-----|
| Male                          | 51  |
| Female                        | 49  |
| Total                         | 100 |
| Veau                          | n   |
| I                             | 5   |
| II                            | 35  |
| III                           | 29  |
| IV                            | 31  |
| BFP                           | n   |
| Yes                           | 50  |
| No                            | 50  |
| Need for secondary procedures | n   |
| With BFP                      | 12  |
| Without BFP                   | 20  |

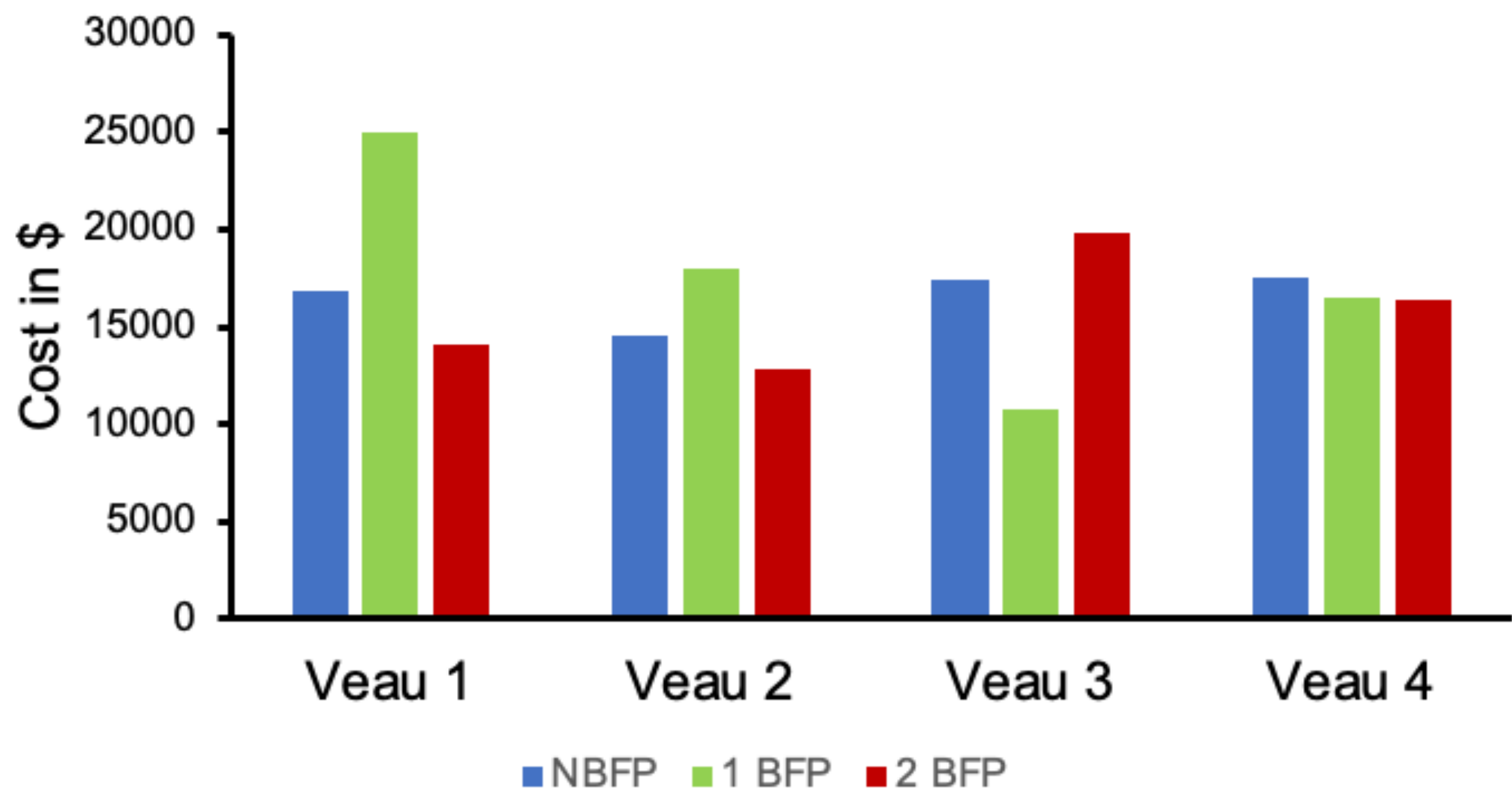
Cost Trend Between NBFP and BFP



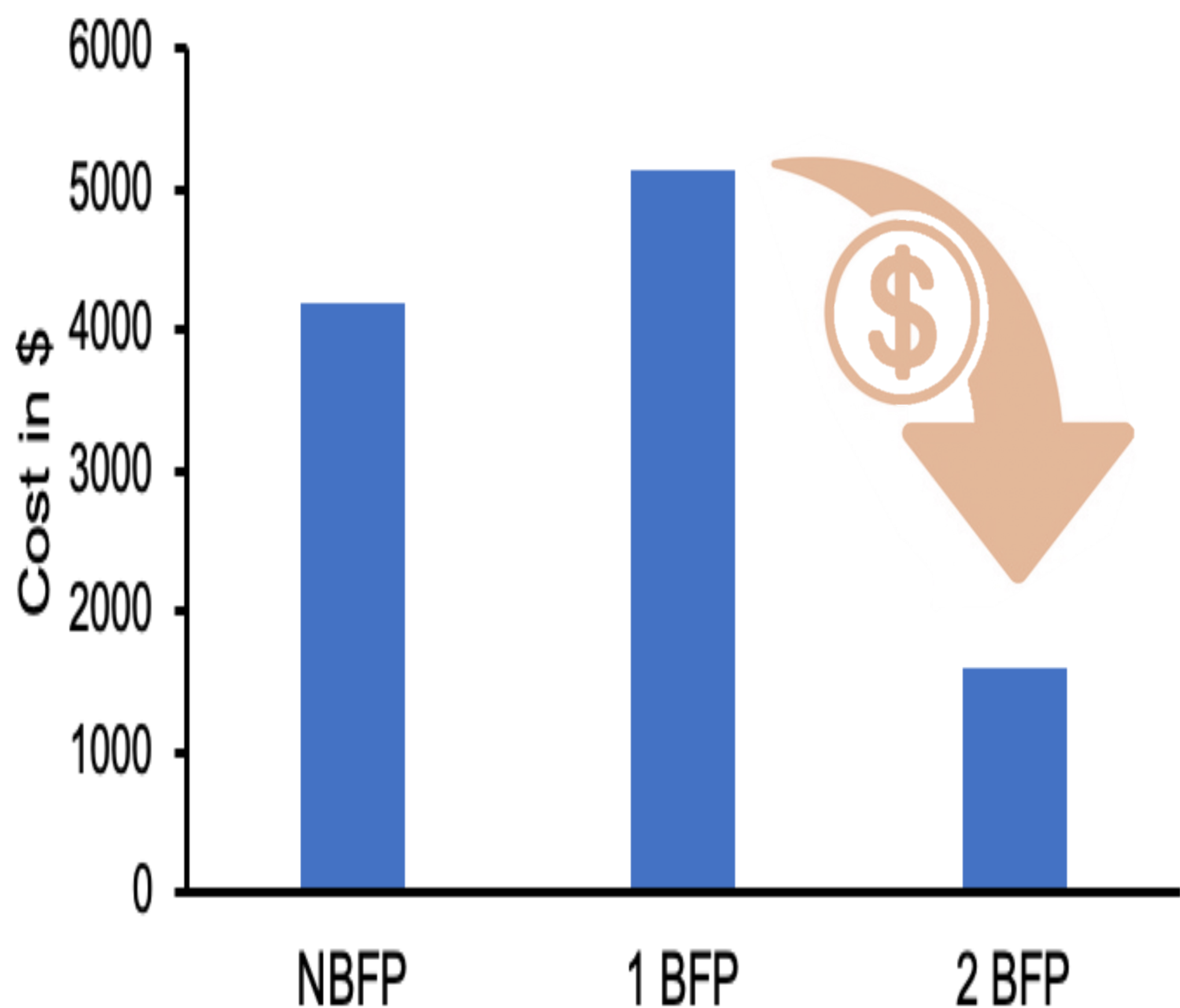
## Results

**Graph 1** Cleft patients who were treated with a BFP at the time of initial surgery ultimately benefited from the \$728.36 increase at the initial surgery. Use of the BFP demonstrated trends that obviated the need for secondary procedures, resulting in an overall \$832.80 decrease in multiple subsequent operations cost compared to the NBFP (\$3362.14 vs \$4194.94).

Overall Cost Trend Dependent on Veau



Secondary Procedure Cost Based on number of BFP



**Graph 2** Use of the BFP demonstrated a trend towards decreasing overall costs to the patients, specifically those suffering from Veau classification 1,2, and 4. Increasing the number of BFP used at the time of the initial surgery tended to result in decreased total cost across the lifespan of the patient.

**Graph 3** Patients who received 2 BFP's paid \$1596.85 for subsequent procedures compared to the NBFP (\$4194.94). This decrease in requirement of secondary procedures demonstrated substantial savings on both cost and quality of life of about ~\$2683.7.

## Conclusions

Patients who received buccal fat pads ultimately experienced decreased financial toxicity due to avoidance of secondary procedures.

The patient profiles who benefited most from the use of buccal fat pads included Veau classification I, II, and IV as total cost decreased with the use of BFP's.

The number of BFP's utilized at the index surgery also impacted the financial burden of care as patients benefited from ~2.7x less the cost of subsequent procedures in the 2 BFP group compared to controls.