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# Comparison of the Cost Effectiveness of Orthognathic Surgery Treatment Between Orthodontic-first and Surgery-first Approaches in the Surgical Phase in Thammasat University Hospital

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## Abstract

**Objectives:** This retrospective cohort study aims to evaluate the costs and advantages of the surgical phase of the surgery-first approach (SFA) versus the orthodontic-first approach (OFA).

**Methods:** Orthognathic surgery has been described as having two concepts: an orthodontic-first approach and a surgery-first approach. However, there was no consensus on which group has the best cost effectiveness in the surgical treatment phase. In total, 70 patients were treated; half of the patients were treated via the SFA, and another half were treated via the OFA. The information collected included operation cost, operation time, total hospital cost, and length of hospitalization. Effectiveness was determined by quality of life, which was measured with the Orthognathic Quality of Life Questionnaire Thai Version (OQLQ) before and then 6 months after treatment. The cost effectiveness was assessed with an incremental cost effectiveness ratio (ICER) and an incremental time effectiveness ratio (ITER).

**Results:** The results indicated the intervention cost and time of SFA were slightly higher but more effective than those of OFA. However, the operation cost ( $p=0.375$ ), operation time ( $p=0.556$ ), total hospital cost ( $p=0.363$ ), and length of hospitalization ( $p=0.643$ ) and OQLQ scores ( $p=0.344$ ) of both groups were not significantly different.

**Conclusions:** The intervention cost and time of SFA were slightly higher but more effective than those of OFA. Depending on the result of this study, SFA treatment planning was a good choice for orthognathic treatment.

**Keywords:** cost effectiveness, orthodontic-first approach (OFA), orthognathic quality of life questionnaire (OQLQ), quality of life, surgery-first approach (SFA)