

# Cost-Effectiveness of Two Schedules of Neoadjuvant Chemotherapy for Breast Cancer Treatment in Ghana

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## Background

- Breast cancer is the leading cause of cancer related deaths among Ghanaian women
- Most patients present at late stages
- Treatment costs create a major financial burden
- Weekly and tri-weekly taxane chemotherapy regimens are common, but the financial and clinical implications of each are underexplored

## Goal

To compare the costs and cost-effectiveness of weekly versus tri-weekly paclitaxel chemotherapy among breast cancer patients treated at a tertiary referral hospital in Ghana.

## Objectives

- To quantify direct medical costs associated with weekly and tri-weekly paclitaxel regimens, including medication and medical personnel costs
- To quantify indirect patient-incurred costs, including transportation, accommodation and missed wages
- To assess treatment response outcomes (complete, partial, no response) as a measure of clinical effectiveness for cost-effectiveness analysis
- To calculate and compare cost-effectiveness using incremental cost-effectiveness ratio (ICER)
- To assess the financial burden of each regimen from the patient perspective

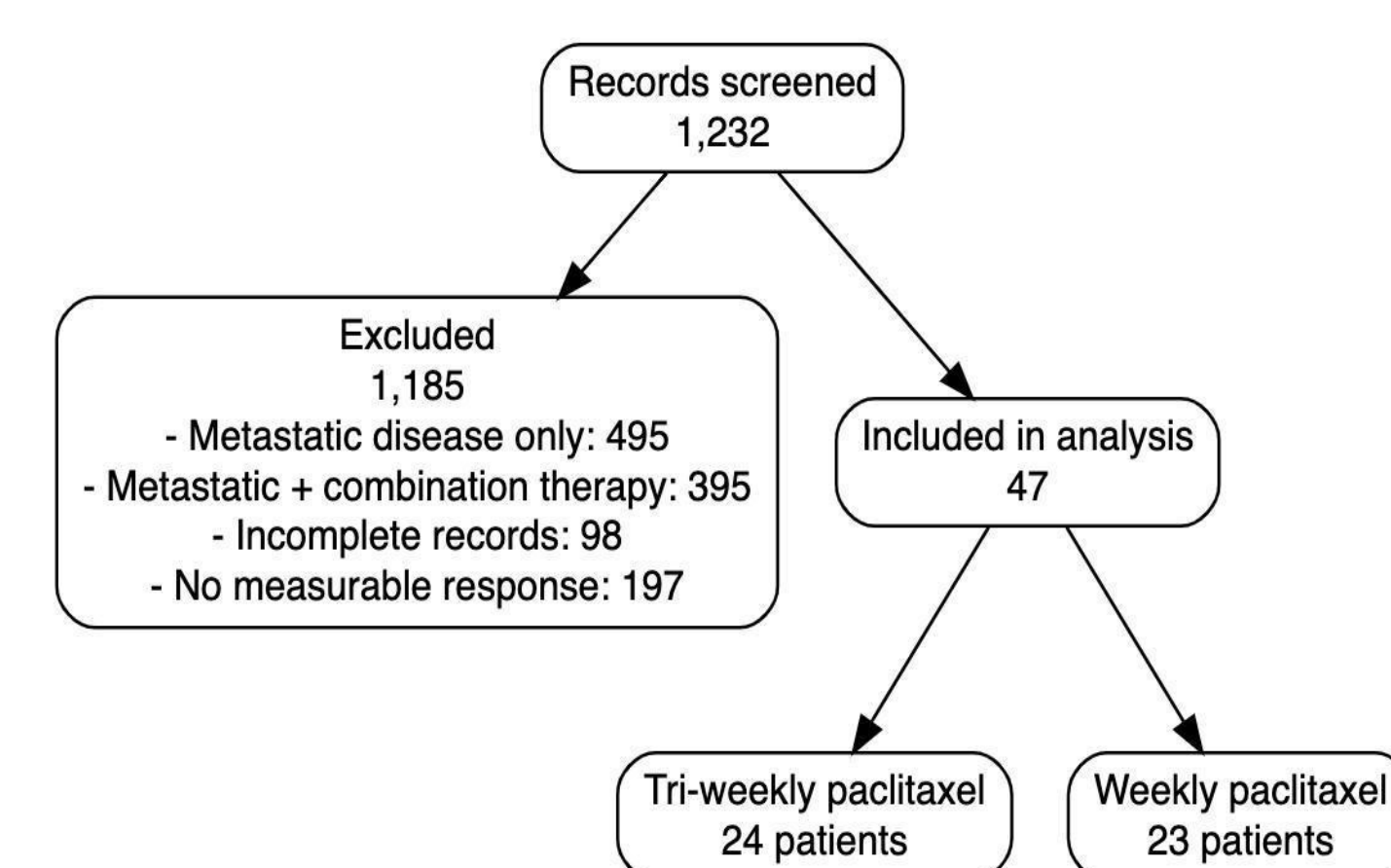


Figure 1. CONSORT-style flow diagram of patient selection

## Methods/Approach

- Design:** Retrospective cohort study at Komfo Anokye Teaching Hospital, Kumasi, Ghana
- Population:** Breast cancer patients (≥18 years) receiving single-agent paclitaxel (weekly vs tri-weekly, neoadjuvant) between 2019-2024
- Exclusions:** Metastatic disease, incomplete records, treatment default/progression, combination regimens
- Regimens:** Weekly (80 mg/m<sup>2</sup> ×12) vs tri-weekly (175 mg/m<sup>2</sup> ×4)
- Costs:** Direct (medication, medical personnel time); Indirect (transport, accommodation)
- Effectiveness:** Treatment response
- Analysis:** Cost comparison + ICER (modified societal perspective)

Figure 2. Per-Patient Cost Breakdown by Treatment Regimen

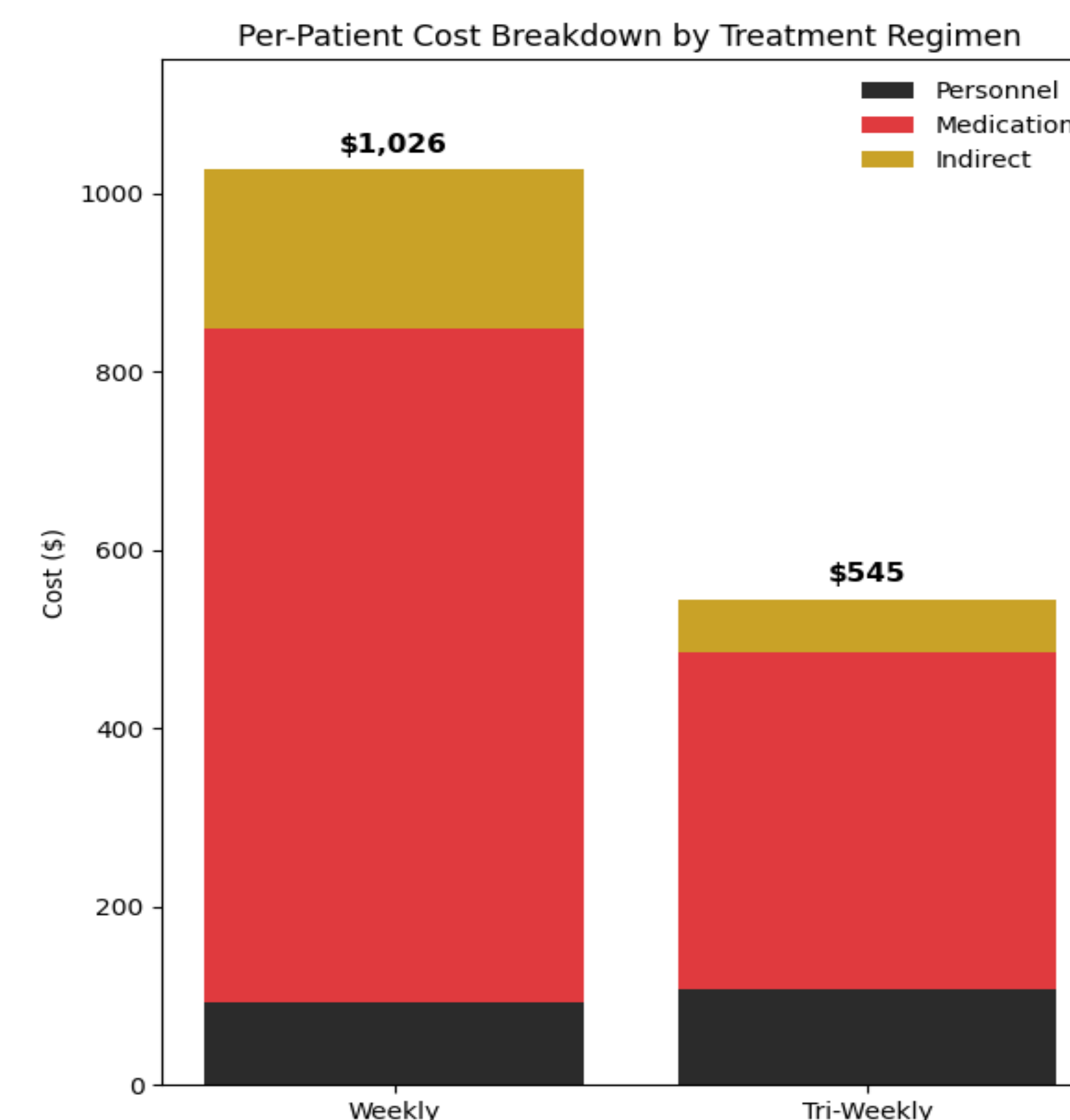
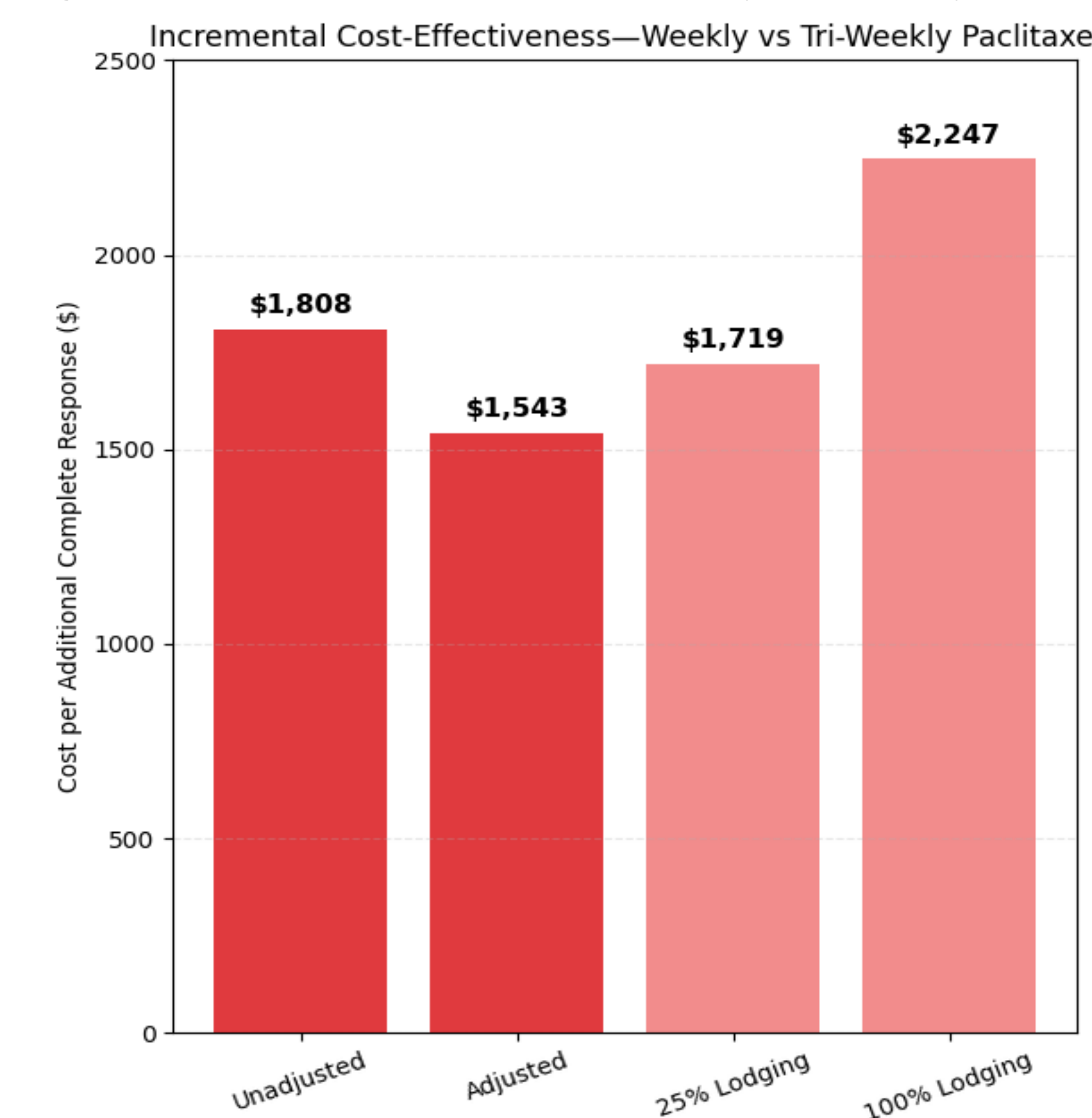


Figure 3. Incremental Cost-Effectiveness-Weekly vs Tri-Weekly Paclitaxel



## Results

- 1,232 records reviewed; 47 patients met inclusion criteria for analysis
- Weekly paclitaxel had nearly 2× higher total per-patient cost (\$1,026 vs. \$545), driven by increased treatment visits and medication use
- Indirect costs were substantially higher for weekly treatment due to more frequent travel and missed work
- Tumor reduction was similar between regimens, with no significant difference observed
- Weekly paclitaxel achieved higher complete response rates (39% vs. 13%; p = 0.034)
- Adjusted analysis showed a consistent but non-significant trend toward lower response with tri-weekly treatment
- Weekly paclitaxel was more effective but at higher cost, with ICERs ranging from \$1,543–\$2,247 per additional complete response depending on lodging assumptions

## Conclusions

- Weekly paclitaxel is more costly but yields higher complete response rates than tri-weekly treatment
- Findings highlight the trade-off between financial burden and clinical effectiveness, providing evidence to guide regimen choice in Ghanaian breast cancer care

## Importance to Public Health

- This study highlights the financial burden of breast cancer treatment in low-resource settings and the trade-off between cost and clinical effectiveness
- Provides evidence to inform treatment decisions and health policies aimed at improving equitable access to cancer care in Ghana

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