

## **A Cost-Evaluation Study on the Use of Negative Pressure Wound Therapy with Instillation for Salvage of Infected Implant-Based Breast Reconstructions**

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**Abstract :** Background: Implant loss due to infection is the most devastating complication of implant-based breast reconstruction. The use of negative pressure wound therapy with instillation (NPWTi) for salvage of infected implant-based breast reconstructions has shown promising results to allow early reinsertion of a new implant as an alternative to current management of delayed reinsertion. This study compares the cost implication of NPWTi against current management of delayed reinsertion of infected breast implants. Methods: 20 cases of an infected breast implant treated with NPWTi (V.A.C. VERAFLOR<sup>TM</sup> Therapy) followed by early re-insertion of a new implant were compared with 20 cases who had delayed reinsertion (non-NPWTi). Average cost per person was calculated using total operative expenses, cost of inpatient stay, cost of investigations, cost of antibiotics, and cost of outpatient visits. Results: Treatment with NPWTi allowed for earlier re-insertion of a new implant (NPWTi:  $9.04 \pm 2.92$  days vs. non-NPWTi:  $236.25 \pm 123.89$  days). The average cost per patient for NPWTi and non-NPWTi was £14,343.13  $\pm$  £2,786.70 and £8,920.31  $\pm$  £3,005.73 respectively. All patients treated with NPWTi had one admission and spent  $11.9 \pm 4.1$  days as an inpatient while non-NPWTi patients had  $2.1 \pm 0.3$  admissions with total length of inpatient stay of  $7.1 \pm 5.8$  days. Patients treated with NPWTi had more surgeries (NPWTi:  $3.35 \pm 0.81$  vs. non-NPWTi:  $2.2 \pm 0.41$ ), however 3 non-NPWTi cases required flap reconstruction. Patients treated with NPWTi had fewer total outpatient visits (NPWTi:  $12 \pm 6$  vs. non-NPWTi:  $14.2 \pm 6.3$ ). Conclusion: Patients treated with NPWTi incurred higher average cost per patient, longer inpatient stay, and more procedures; however, had early re-insertion of new implants and fewer admissions and outpatient visits. A further study on patient-reported outcome is essential to compare cost against patient benefit.

**Keywords :** breast reconstruction, cost evaluation, infection, negative pressure wound therapy

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