Economic Value with V.A.C.® Therapy

Effect of Early vs. Late initiation of negative pressure wound therapy on total treatment and wound-related costs
ANALYSIS OF INSURANCE CLAIMS DATA

Considering Total Cost of Care

• Negative pressure wound therapy (NPWT) has become a common treatment choice for many wounds over the past 16 years.
• Benefits of Early vs. Late initiation of NPWT on acute and chronic wounds have also been demonstrated in acute care, long-term acute care and home health care.
• Clinicians have many options available for the treatment of wounds; the challenge comes in balancing cost of treatment with the overall cost of care.

Analysis Objective and Methodology

• The objective of this study was to assess total treatment costs for patients receiving KCI V.A.C. Therapy when initiated Early vs Late in the treatment of acute and chronic wounds.
• A retrospective analysis was conducted on a national insurance provider’s medical claims data examining 6,181 acute and 1,480 chronic wound patients that received NPWT from January 1, 2009 to June 30, 2011.
• Patient costs were tracked for 6 months prior to NPWT and 12 months post NPWT.
• Total costs include all claims submitted for the patient after the initial post acute NPWT claim; no costs were excluded from the analysis.
• Costs were classified as “wound related” if a wound diagnosis appeared within the top three diagnoses on the claim.
• Early NPWT was defined for acute wounds as treatment initiated within the first 7 days from the first wound treatment date and within 30 days for chronic wounds; late NPWT initiation occurred after this time.
• A secondary analysis was conducted on a sub-set of patients where Charlson Co-morbidity Index Scores ≤5, to assess Early vs. Late cost differences by wound type, excluding the sickest patients with significant non-wound long-term care costs; this cohort represented 80% of the wounds.

Selected Study Findings:

• Chronic wound patients tend to be older, sicker and costlier to treat than acute wound patients, with a higher cost improvement benefit from initiating NPWT Early vs. Late than acute patients.
• Patients with acute wounds treated early had 17.7% lower total estimated costs ($54,999 vs $66,865, p<0.001).
• Patients with chronic wounds treated early had 25% lower total estimated costs ($70,016 vs. $93,289, p<0.001).
• Total Wound Costs were 30% lower for acute wounds treated Early vs. Late ($13,416 vs. $19,112, p<0.001), and 40.98% lower for chronic wounds treated Early vs. Late $23,950 vs $40,579, p<0.001).

*Each Patient received at least 1 charge for NPWT.
The Economics of Healing Matters

Expected 12-month total costs to treat acute and chronic wounds Early vs. Late initiation of NPWT

- Early: $54,999, p<0.001
- Late: $66,865, p<0.001

Total wound costs were 30% lower for acute wounds treated Early vs. Late and 41% lower for chronic wounds.

Differences in 12-month costs for KCI NPWT patients indicated reduced total costs of care for patients receiving NPWT Early vs. Late in all wound types except Necrotizing Fasciitis.

- Pressure Ulcer: $100,000, $80,000, p<0.065
- DFU: $341, $290, p<0.010
- Cellulitis and Other Soft Tissue Infection with Debridement: $60,000, $45,000, p<0.010
- Open Wounds: $1086, $540, p<0.010
- Non-Healing Surgical Wounds: $3594, $1650, p<0.010
- Necrotizing Fasciitis: $65, $30, p<0.010

A sub-set analysis of 4974 acute wounds and 986 chronic wounds with Charlson Comorbidity Scores ≤5 allowed a further comparison of Early vs. Late by wound types, with the very sick (Charlson Co-morbidity Scores >5) removed.

Early vs. Late NPWT initiation reduced total estimated costs by 17.7% in acute wounds and by 25% in chronic wounds.
KCI V.A.C.® Therapy is Designed to Help Accurately Deliver the Prescribed Negative Pressure for Optimal Healing

- Individual sensing lumens **measure, monitor, manage, and maintain negative pressure** at the wound site
- Software-controlled technology helps maintain negative pressure and helps **reduce tubing blockages** and false alarms
- Nationwide product-related clinical and technical support for patients, clinicians and caregivers available 24/7/365

KCI understands the importance of demonstrating our therapies' value in improving outcomes, patient satisfaction, and lowering the total cost of care. For additional information, please call **800.826.0270**

### STUDY DEMOGRAPHICS

#### Acute Wound Type

<table>
<thead>
<tr>
<th>Wound Type</th>
<th>N</th>
<th>Avg. Age at time of NPWT</th>
<th>Avg. Charlson Index Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-healing Surgical Wounds</td>
<td>4,424</td>
<td>57.9</td>
<td>3.0</td>
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<tr>
<td>Open Wounds</td>
<td>1,329</td>
<td>59.7</td>
<td>3.0</td>
</tr>
<tr>
<td>Cellulitis and Other Soft Tissue Inf w/ Debridement</td>
<td>266</td>
<td>52.8</td>
<td>2.8</td>
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<tr>
<td>Necrotizing Fasciitis</td>
<td>78</td>
<td>52.4</td>
<td>2.8</td>
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<tr>
<td>Orthopedic Trauma</td>
<td>41</td>
<td>45.2</td>
<td>1.4</td>
</tr>
<tr>
<td>Flaps and Grafts</td>
<td>39</td>
<td>49.4</td>
<td>2.2</td>
</tr>
<tr>
<td>Diabetes with Amputation</td>
<td>4</td>
<td>60.8</td>
<td>3.8</td>
</tr>
<tr>
<td>Acute Early</td>
<td>3,391</td>
<td>56.9</td>
<td>2.7</td>
</tr>
<tr>
<td>Acute Late</td>
<td>2,790</td>
<td>59</td>
<td>3.2</td>
</tr>
<tr>
<td>Acute Total</td>
<td>6,181</td>
<td>57.9</td>
<td>3.0</td>
</tr>
</tbody>
</table>

#### Chronic Wound Type

<table>
<thead>
<tr>
<th>Wound Type</th>
<th>N</th>
<th>Avg. Age at time of NPWT</th>
<th>Avg. Charlson Index Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure Ulcer</td>
<td>842</td>
<td>63.2</td>
<td>3.8</td>
</tr>
<tr>
<td>Diabetes and Ulcer</td>
<td>475</td>
<td>61.4</td>
<td>4.5</td>
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<tr>
<td>Venous Leg Ulcers</td>
<td>88</td>
<td>66.8</td>
<td>4.7</td>
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<tr>
<td>Unknown</td>
<td>75</td>
<td>56.8</td>
<td>2.0</td>
</tr>
<tr>
<td>Chronic Early</td>
<td>470</td>
<td>60.9</td>
<td>3.5</td>
</tr>
<tr>
<td>Chronic Late</td>
<td>1,010</td>
<td>63.2</td>
<td>4.2</td>
</tr>
<tr>
<td>Chronic Total</td>
<td>1,480</td>
<td>62.5</td>
<td>4.0</td>
</tr>
<tr>
<td>Total Population</td>
<td>7,661</td>
<td>58.8</td>
<td>3.2</td>
</tr>
</tbody>
</table>

**Conclusion**

In this large retrospective analysis of acute and chronic wounds, early NPWT initiation resulted in lower estimated total and wound-related costs than late use of NPWT, supporting previous published benefits of early initiation of NPWT.¹-⁴

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**References:**