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

- Acute wounds:
  - Early: $54,999
  - Late: $66,865
  - Difference: $11,866
  - p<0.001

- Chronic wounds:
  - Early: $70,016
  - Late: $93,823
  - Difference: $23,807
  - p<0.001

Early vs. Late NPWT initiation reduced total estimated costs by 17.7% in acute wounds and by 25% in chronic wounds.

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

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

- Acute wounds:
  - Early: $13,416
  - Late: $19,112
  - Difference: $5,696
  - p<0.001

- Chronic wounds:
  - Early: $23,950
  - Late: $40,579
  - Difference: $16,629
  - p<0.001

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.

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.
STUDY DEMOGRAPHICS

<table>
<thead>
<tr>
<th>Acute Wound Type</th>
<th>N</th>
<th>Avg. Age at time of NPWT</th>
<th>Avg. Charlson Index Score</th>
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<tbody>
<tr>
<td>Non-healing Surgical Wounds</td>
<td>4,424</td>
<td>57.9</td>
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<tr>
<td>Open Wounds</td>
<td>1,329</td>
<td>59.7</td>
<td>3.0</td>
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<tr>
<td>Cellulitis and Other Soft Tissue Inf w/ Debridement</td>
<td>266</td>
<td>52.8</td>
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<td>Necrotizing Fasciitis</td>
<td>78</td>
<td>52.4</td>
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<tr>
<td>Orthopedic Trauma</td>
<td>41</td>
<td>45.2</td>
<td>1.4</td>
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<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>
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<tr>
<td>Acute Total</td>
<td>6,181</td>
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</table>

<table>
<thead>
<tr>
<th>Chronic 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>
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<tr>
<td>Diabetes and Ulcer</td>
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<td>Venous Leg Ulcers</td>
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<td>66.8</td>
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<tr>
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<tr>
<td>Chronic Early</td>
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<td>60.9</td>
<td>3.5</td>
</tr>
<tr>
<td>Chronic Late</td>
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<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>
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</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

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 maintains 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 contact the KCI Health Economics Department or your local Sales Representative.

Source: Analysis conducted on insurance claims data by Axia Ltd. Data on file with KCI

References: