Economics of Wound Care
Cost-effective Interventions to Achieve Timely Wound Healing
Cost-effective Wound Care

Treating non-healing wounds is costly, both in terms of time and resources required. The annual cost of chronic non-healing wounds in the U.S. can reach $25 billion.\(^1\) In determining the most cost-effective and efficacious treatment path, it is challenging to accurately determine all costs related to non-healing wounds.

Fortunately, most wounds naturally advance through the healing process in a matter of weeks as shown directly below. However, not all wounds move through the process as expected and become non-healing wounds.

Normal Wound Healing Process

Non-healing Wounds

Many variables influence wound care costs – wound type, wound severity and patient severity. Normal wound healing progresses through a series of healing phases. However, when patients are compromised with comorbidities normal wound healing can be stalled.

Examples of Non-healing Wounds
- Dehisced Wounds
- Pressure Ulcers
- Venous Insufficient Ulcers
- Infected Wounds
- Diabetic Foot Ulcers
- Burns
- Traumatic Wounds
Factors Impairing Healing

There are a number of factors that impair wound healing leading to further therapeutic interventions.

Factors Impairing Healing

<table>
<thead>
<tr>
<th>Microenvironment</th>
<th>Clinical Observations</th>
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<tbody>
<tr>
<td>Impaired Blood Flow</td>
<td>Bacterial Infection</td>
</tr>
<tr>
<td>Deficient Growth Factors</td>
<td>Moisture Imbalance</td>
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<tr>
<td>Senescent Cells</td>
<td>Physical Pressure</td>
</tr>
<tr>
<td>Sustained Inflammation</td>
<td>Inadequate Nutrition</td>
</tr>
<tr>
<td>Excessive Proteolysis</td>
<td>Wound Pain</td>
</tr>
<tr>
<td>Bacterial Bioburden</td>
<td>Patient Non-compliance</td>
</tr>
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Research suggests that an uncomplicated wound might cost about $8,000. Stockl reported that diabetic foot ulcers that progressed to a higher severity experienced more than $17,000 in higher costs than those that did not.

Economic Consequences of Non-healing Wounds

- Length-of-stay (LOS) of patient
- Utilization of antibiotics, analgesics and advanced wound therapies (i.e., NPWT, Silver Dressings, etc.)
- Usage of biological grafts
- Hospital readmissions
- Wound recidivism
- Cost of care in managing the patient
- Surgical and diagnostic interventions

Treatment Path/Cost Scale

The lower the wound severity, the more effective Standard of Care will be. However, as wound and patient severity increase, so does the need for additional costly therapies.

Approximately 85% of all amputations start as a simple ulcer. Taking a limb costs about $45,000. Up to 50% of patients undergoing an amputation will undergo a second within 5 years.
Painless Accelerated Healing

To understand the economic benefits MIST Therapy® provides, it's important to first understand MIST’s healing benefits.

MIST Therapy delivers a low frequency ultrasound through a saline mist to the wound bed. When combined with Standard of Care, this painless, non-contact energy delivery results in four key aspects of wound healing:

• Active cell stimulation
• Decreased bioburden
• Increased blood flow
• Cleansing and gentle maintenance debridement

The clinical benefits of MIST Therapy has been studied in over 500 patients. Over 35,000 patients have benefited from the healing power of MIST Therapy.
The MIST Therapy® Effect

MIST Therapy provides the benefits of painless healing with economic savings.

MIST Therapy, together with Standard of Care, decreases the need for additional therapies, decreases the number of treatment days and has been shown to reduce the risk of amputation or further surgical interventions.

The clinical benefits of MIST Therapy provide institutions treating non-healing wounds added economic benefits. Beyond the savings noted from accelerated healing, MIST Therapy also delivers potential savings in the reduction of more expensive advanced therapies, pharmaceuticals and biologics.

MIST Therapy may eliminate or reduce the need for:

- Usage or prolonged use of advanced therapies
  - NPWT\(^{16-17}\)
  - Silver Dressings\(^{16-17}\)
- Usage of advanced biologics\(^{11-13}\)
- Usage of antibiotics (bacterial resistance)\(^{12,14}\)
- Usage of analgesics & pain medications\(^{15}\)
- Usage of invasive debridement\(^{11}\)
- Hospital readmissions\(^{11}\)
- Wound recidivism\(^{9,12}\)
- Costs associated with amputations\(^{18}\)

MIST Therapy may increase:

- Patient compliance
- Post surgical rehabilitation
- Patient’s Quality of Life (QOL)
- Advanced biologic or skin flap acceptance\(^{11-15}\)
Cost Savings with MIST Therapy

An analysis was completed to compare the cost of care for patients with diabetic foot ulcers treated for 12 weeks with Standard of Care (SOC) only to MIST Therapy plus SOC.19

**Research Design and Methods:** Three retrospective diabetic foot ulcer studies provided SOC cost and closure rate data used to assess the cost effectiveness of MIST Therapy. The MIST Therapy randomized sham controlled clinical trial results provided the closure data for MIST Therapy.

**Results:** A cost model was developed. These results were compared to MIST Therapy plus SOC for a case-mix adjusted cost per 1,000 patients.

<table>
<thead>
<tr>
<th></th>
<th>SOC Alone</th>
<th>MIST Therapy + SOC</th>
<th>Cost Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healed/progressed towards healing</td>
<td>70%</td>
<td>91%</td>
<td></td>
</tr>
<tr>
<td>Deteriorated</td>
<td>30%</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>Total cost per 1,000 patients for a 12-week episode of care</td>
<td>$10,351,324</td>
<td>$7,795,703</td>
<td>$2,555,620</td>
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The savings for MIST Therapy accrue because of the greater number of ulcers that heal or progress toward healing within 7-12 weeks. These savings translate to a per patient costs savings.

Such results emphasize the importance of early detection, aggressive treatment of such ulcers, and a need for effective intervention.
Clinical Studies and Case Stories
The MIST Therapy System produces a low energy ultrasound-generated mist used to promote wound healing through wound cleansing and maintenance debridement by the removal of yellow slough, fibrin, tissue, exudates and bacteria.

Please see full package insert for additional information on indications, contraindications, warnings, precautions, and side effects.

References


For more information, contact your local Celleration representative or call (952) 224-8700.