Economics of Wound Care in Critical Limb Ischemia

The Cost of Wounds in 2016

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Disclosures

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• Michigan Podiatric Medical Association

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Medical/Scientific Boards:
• none
“Complex” Wounds

• Wounds present for 3 months or more
• In High Economy Countries: at least 1% of population
• Wound care: 4% of Total healthcare costs
• In the USA: >6.5 Million people
  • Diabetic Foot Wounds (DFU):
    • 33-50% of all Wound Costs
US Wound Registry 2014 (5 year study)
US Wound Registry 5 Year Study (2014)

- Average age 62
- Male 52%  Female 48%
- Medicare beneficiary 52%
- Comorbidities:
  - Diabetes 47%
  - Heart disease 51%
  - Obese 71%
US Wound Registry 5 Year Study (2014)

• **Time** to healing
  • 15 weeks: 66%
  • 33 weeks: 10%

• **Mean Cost** to heal
  • Uncomplicated: $3927
  • Jeopardized Flaps and Grafts: $9358

• **Died** in Hospital (or within 2 weeks of discharge): 2%
The **Bioactive** Wound Care Market is expected to grow at a Compound Annual Growth Rate of **6.5%** until 2020.
PAD and Diabetes:
A Deadly and Expensive Duo
Number and Percentage of U.S. Population with Diagnosed Diabetes, 1958-2013

DFU Costs in America (CDC 2014)

• Prevalence: **29.1 million** people (9.3%)
  • "PreDiabetes" (2012): 37% of age 20+, 51% of age 65+

• DFU prevalence: **4%**

• Annual cost of DFU: **$6.3 billion**
Up to 20% of DFU patients require hospitalization.

CDC: Diabetics undergo 66,000 amputations/year.

DFU is the MOST EXPENSIVE chronic wound
  • Twice the cost of other chronic wounds

Cost of DFU for Medicare beneficiary: $33,000/yr
### Relative Size of Populations of Diabetes and It’s Complications of the Lower Extremity

D. Armstrong 2015

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
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<tbody>
<tr>
<td>US population</td>
<td>318,900,000</td>
</tr>
<tr>
<td>Diabetes</td>
<td>29,657,700</td>
</tr>
<tr>
<td>Peripheral artery disease (PAD)</td>
<td>15,945,000</td>
</tr>
<tr>
<td>Neuropathy</td>
<td>14,828,850</td>
</tr>
<tr>
<td>Diabetic foot ulcers</td>
<td>1,779,462</td>
</tr>
<tr>
<td>Severe PAD</td>
<td>1,594,500</td>
</tr>
<tr>
<td>Limb loss</td>
<td>1,080,000</td>
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</tbody>
</table>
Categorization of DFU (SAGE Group)

• Neuropathic 35%
• Ischemic 15%
• Combined 50%
Diabetic Foot Ulcer and Lower Extremity Amputation
Medicare Population 2008

• Annual incidence
  • DFU 6%
  • LEA 0.4%

• Mortality rate
  • DFU 10.7%
  • LEA 20%
## The Burden of the Diabetic Foot Ulcer
### Comparing “DFU” to “DM no Foot Ulcer” (2007-2011)

Rice, Diab.Care 3/2014

<table>
<thead>
<tr>
<th></th>
<th>Medicare</th>
<th>Private Insurance</th>
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<tbody>
<tr>
<td>Days Hospitalized</td>
<td>+138%</td>
<td>+174%</td>
</tr>
<tr>
<td>Days requiring HHC</td>
<td>+85%</td>
<td>+230%</td>
</tr>
<tr>
<td>ER visits</td>
<td>+41%</td>
<td>+109%</td>
</tr>
<tr>
<td>Outpatient Office visits</td>
<td>+35%</td>
<td>+43%</td>
</tr>
<tr>
<td>Amputation</td>
<td>4x</td>
<td>5x</td>
</tr>
<tr>
<td>Annual Health Care $</td>
<td>+$11,710</td>
<td>+$16,883</td>
</tr>
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</table>
### Effect of PAD on DFU Costs

(Stockl 2004)

<table>
<thead>
<tr>
<th>Wound Grade</th>
<th>Average Cost</th>
<th>No PAD</th>
<th>With PAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 2</td>
<td>$4,345</td>
<td>$3,269</td>
<td>$6,762</td>
</tr>
<tr>
<td>Grade 4/5</td>
<td>$22,721</td>
<td>$11,686</td>
<td>$34,845</td>
</tr>
<tr>
<td>Average of All Wounds</td>
<td>$13,065</td>
<td>$5,218</td>
<td>$23,372</td>
</tr>
</tbody>
</table>
What happens in 2050 when One in Three Americans have Diabetes?
Patient Economic and PsychoSocial Costs

• Economic
  • Lost wages
  • Medical copays and deductibles
  • Home and Personal modifications for Living
  • Nursing Home / Rehab / Home Health costs

• Reduced Quality of Life
  • Ambulation impairment
  • Body care
  • Movement and Mobility issues
  • Psychological and Societal issues
In Summary

• Wound Care costs make up 4% of healthcare costs
• DFU account for almost half all wound costs
• Risk of Death doubles when DFU pt. has LEA
• DFU costs increase over 4 times if they also have PAD
• Incidence of Diabetes continues to increase
• PAD and Diabetes are a Deadly and Costly Duo
“Success is getting what you want. Happiness is wanting what you get”

Dale Carnegie
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