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Jacob M. Dougherty BS
hl6843@wayne.edu

Hannan A. Maqsood MBBS

Zhaohui Fan MD MPH

Stewart C. Wang MD PhD

Mark R. Hemmila MD

See next page for additional authors

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The Long-Term Economic Implications of Burn Injury for Burn Survivors

Jacob M. Dougherty BS\textsuperscript{1,2,3}, Hannan A. Maqsood MBBS\textsuperscript{2,3}, Zhaohui Fan MD MPH\textsuperscript{2,3}, Stewart C. Wang MD PhD\textsuperscript{2,3}, Mark R. Hemmila MD\textsuperscript{2,3}, Naveen F. Sangji MD MPH\textsuperscript{2,3}

Author Affiliations:

\textsuperscript{1} Wayne State School of Medicine, 540 E. Canfield Avenue, Detroit, MI, 48201
\textsuperscript{2} Department of Surgery, University of Michigan, 2101 Taubman Center, 1500 E. Medical Center Drive, Ann Arbor, MI, 48109
\textsuperscript{3} Center for Healthcare Outcomes and Policy, University of Michigan, 2800 Plymouth Road, North Campus Research Complex, Bldg.16, Ann Arbor, MI, 48109

ABSTRACT

Introduction: The long-term economic implications of burn injury on patients and payors has not been well described. Burn injury can be costly due to prolonged intensive care, wound care, rehabilitation, psychological care, and reconstructive surgery that may be required well after the initial injury. We investigated index and post-acute payor and out-of-pocket (OOP) costs related to burn injury for in-patient care at 30 days, and up to 36 months post-discharge to understand the long-term economic implications for burn survivors.

Methods: An observational cohort study was conducted using a commercial claims database from IBM Watson Health\textsuperscript{®} Marketscan. Patients age \(\leq 65\) years with an ICD9/10 diagnosis code of burn injury between 2011 and 2016 were identified and tracked for a three-year period following the injury. This was used to determine the payor and OOP costs for burn care during the initial treatment and the three-year period following discharge through 2019.

Results: We identified 11,815 patients who were admitted for in-patient care for a burn injury between 2011 to 2016. The inflation-adjusted index out-patient evaluation or emergency room costs ranged from $400 to $942 during the study period. For the index admission, length of stay (LOS) ranged from 5.4 days to 6.2 days, 30-day complication rates ranged from 15.6\% to 21.7\%, and 30-day readmission rates ranged from 7.2\% to 9.6\% within this timeframe. The payor costs for burn care ranged from $2,057 to $3,944 at 30 days, and $2,615 to $5,166 at 36-months post discharge, for each year from 2011 to 2016. The OOP costs ranged from $105 to $217 at 30 days, and $149 to $263 at 36-months post discharge, respectively, for each year from 2011 to 2016 (Table 1).
Conclusions: Burn injury creates significant financial burdens associated with care in the following years which are highly impactful to both patients and providers. Further investigation of the long-term economic implications related to burn injury is an area of interest in burn care.

Table 1: Total Costs, Readmission Rates, and Complication Rates from 2011-2016

<table>
<thead>
<tr>
<th>Year</th>
<th>Sample Size (n)</th>
<th>Index OP/ER Total</th>
<th>Index Length of Stay (days), mean</th>
<th>Complication Rates</th>
<th>Readmission Rates</th>
<th>30-day OOP</th>
<th>30-day Payor</th>
<th>36-month OOP</th>
<th>36-month Payor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>3331</td>
<td>$400</td>
<td>5.4</td>
<td>15.6%</td>
<td>7.2%</td>
<td>$105</td>
<td>$2,475</td>
<td>$169</td>
<td>$3,576</td>
</tr>
<tr>
<td>2012</td>
<td>3477</td>
<td>$443</td>
<td>5.4</td>
<td>15.9%</td>
<td>7.6%</td>
<td>$107</td>
<td>$2,057</td>
<td>$149</td>
<td>$2,615</td>
</tr>
<tr>
<td>2013</td>
<td>1972</td>
<td>$645</td>
<td>5.4</td>
<td>15.7%</td>
<td>9.1%</td>
<td>$152</td>
<td>$2,314</td>
<td>$199</td>
<td>$2,996</td>
</tr>
<tr>
<td>2014</td>
<td>1399</td>
<td>$696</td>
<td>5.7</td>
<td>17.7%</td>
<td>9.2%</td>
<td>$149</td>
<td>$2,127</td>
<td>$189</td>
<td>$2,644</td>
</tr>
<tr>
<td>2015</td>
<td>743</td>
<td>$942</td>
<td>5.7</td>
<td>19.7%</td>
<td>9.6%</td>
<td>$217</td>
<td>$2,982</td>
<td>$263</td>
<td>$3,511</td>
</tr>
<tr>
<td>2016</td>
<td>893</td>
<td>$737</td>
<td>6.2</td>
<td>21.7%</td>
<td>7.4%</td>
<td>$161</td>
<td>$3,944</td>
<td>$248</td>
<td>$5,166</td>
</tr>
</tbody>
</table>

*OP= Out-patient; ER= Emergency Room; LOS= Length of Stay; OOP= Out-of-pocket