Length of Stay Beyond Medical Readiness in Neurosurgical Patients

Joseph R. Linzey, Elyne N. Kahn, Aditya S. Pandey
Disclosures

• No disclosures relevant to this research
By 2020, healthcare costs will consume 20% of GDP\textsuperscript{1}

Minimizing length of stay (LOS)
- Reduces costs
- Minimizes hospital-acquired complications

We introduce the concept of LOS Beyond Medical Readiness (BMR)

Methods

- Prospective, cohort analysis
- All adult neurosurgical patients admitted to the general care floor or NICU were included
- Patient’s were assessed as to whether they were medically ready for discharge daily by the attending surgeon and treating team
Methods

Criteria to Determine Medical Readiness for Discharge

1. Patient was afebrile for >24 hours with stable vital signs.
2. Most recent laboratory values were stable.
3. Pain was under adequate control.
   All drains, tubes, and catheters were removed prior to discharge.
4. The patient was not considered to be within a critical period of observation (i.e., vasospasm period or postoperative day 1 from craniotomy).
5. The neurosurgical attending on duty deemed the patient medically ready for discharge.

Barriers to Discharge

1. Personal issues (i.e., homeless, concerns about pain, lack of transportation)
2. Insurance issues
3. Further monitoring requests
4. Unexpected complication or new diagnosis
5. Waiting for recommendations from a different service
6. Delays secondary to physical therapy
   Issues related to discharge location or availability of beds
7. No perceptible barriers
8. Other
## Results

### Demographic Data

<table>
<thead>
<tr>
<th></th>
<th>n = 717</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yrs)</td>
<td>56.1 (16.6)%</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>341 (47.6%)</td>
</tr>
<tr>
<td>Female</td>
<td>376 (52.4%)</td>
</tr>
<tr>
<td>Presenting Pathologies</td>
<td></td>
</tr>
<tr>
<td>Spine</td>
<td>213 (29.7%)</td>
</tr>
<tr>
<td>Cerebrovascular</td>
<td>173 (24.1%)</td>
</tr>
<tr>
<td>Brain Tumor</td>
<td>149 (20.8%)</td>
</tr>
<tr>
<td>Other</td>
<td>181 (25.2%)</td>
</tr>
<tr>
<td>Medical Comorbidities</td>
<td></td>
</tr>
<tr>
<td>No Comorbidities</td>
<td>149 (20.8%)</td>
</tr>
<tr>
<td>One Comorbidity</td>
<td>242 (33.7%)</td>
</tr>
<tr>
<td>Two Comorbidities</td>
<td>199 (27.7%)</td>
</tr>
</tbody>
</table>
Results

- 14.6% of patients remained in the hospital BMR
  - Average duration was 1.8 days
- 40% of patients with a LOS-BMR had issues with disposition to a rehabilitation facility
- 19% of patients had a LOS-BMR due to personal issues
Results

- 7.7% of patients discharged to home vs. 30.7% of patients discharged to a skilled nursing facility had a LOS-BMR ($p < 0.001$)
- No significant difference if medical readiness was determined on a weekday vs weekend
Limitations

- Single center
- Patients recruited over two disjointed times
- Subjective nature of determining medical readiness
  - However, this simulates the real world decision making
- Self-reported barriers to discharge may be affected by reporting or social desirability biases
Summary

• LOS-BMR is an important socioeconomic concept
• Represents a potential area for improvement to maximize utilization of scarce healthcare resources
• A sizable (15%) portion of our neurosurgical patients remained in the hospital BMR