MSSIC ANALYSIS:
• UPDATE - AMBULATION WITHIN 8 HOURS

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[Image of Victor Chang, MD]
TIMING OF POSTOPERATIVE AMBULATION - UPDATED ANALYSIS

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MSSIC Co-Director
Time to Ambulation Data in MSSIC

• Started tracking time to postop ambulation in July 2018.

• Early ambulation (< 8 hours) became a performance measure in 2020
Reminder of inclusion criteria

– Both Lumbar and Cervical cases
– No wheelchair bound/non-ambulatory patients
– No 4+ level fusions
– No postop CSF leak or durotomy
Since collection of time of ambulation
Ambulation Within 8 Hours of Surgery with 2020 Performance Index Criteria Applied (Lumbar and Cervical Patients) All Procedures

2020 Revised MSSIC All Goal: 63%
Ambulation within 8 hours – Top Performing Sites

• Early ambulation and continued ambulation is standardized and detailed in clear order sets
• Documentation is purposeful and in a standardized location in the EMR
• Patients and their families are engaged and educated preoperatively
• No one stays in bed until POD 1 unless there is a contraindication
Ambulation within 8 hours – Top Performing Sites

• Rare use of the “one-point restraint” (foley catheters)
• Patients are usually ambulated w/in 2 to 4 hours after surgery or arrival to the floor
• Who ambulates the patient for the first time?
  – Nursing – they do not wait for P.T. to do it
  – RNs and CNAs are trained and comfortable
• No Urinals or Bedside Commodes. Unless there is a contraindication, patients are ambulated to the bathroom
Updated analysis of Ambulation within 8 hours

• Using criteria listed above, data were pulled from the MSSIC registry
  – Excluded outpatient same day discharged patients
• Includes cases from July 2018 to July 2020
• 20,050 cases met the inclusion criteria
• 18,071 (90%) had time information available
Time of ambulation

*For cases with times recorded

- <8 hours (n=12,029, 67%)
- 8-24 hours (n=5,067, 28%)
- >24 hours (n=975, 5%)
Demographic and Clinical Characteristics that Varied the Most Across Postop Ambulation Times

<table>
<thead>
<tr>
<th>Variable</th>
<th>&lt; 8 Hours (N = 12029)</th>
<th>8 - 24 Hours (N = 5067)</th>
<th>&gt; 24 Hours (N = 975)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>2676 (22%)</td>
<td>1352 (27%)</td>
<td>295 (30%)</td>
</tr>
<tr>
<td>CAD</td>
<td>1522 (13%)</td>
<td>808 (16%)</td>
<td>180 (18%)</td>
</tr>
<tr>
<td>ASA Grade &gt; 2</td>
<td>6050 (50%)</td>
<td>3018 (60%)</td>
<td>672 (69%)</td>
</tr>
<tr>
<td>Independently Ambulatory</td>
<td>10170 (85%)</td>
<td>3887 (77%)</td>
<td>631 (65%)</td>
</tr>
<tr>
<td>PROMIS Baseline</td>
<td>36.1 ± 6.6</td>
<td>34.9 ± 6.5</td>
<td>33.7 ± 6.2</td>
</tr>
<tr>
<td>Fusion</td>
<td>6900 (57%)</td>
<td>3696 (73%)</td>
<td>750 (77%)</td>
</tr>
<tr>
<td>Number of Levels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>5806 (49%)</td>
<td>2178 (44%)</td>
<td>347 (36%)</td>
</tr>
<tr>
<td>2</td>
<td>3870 (33%)</td>
<td>1678 (34%)</td>
<td>341 (36%)</td>
</tr>
<tr>
<td>3+</td>
<td>2117 (18%)</td>
<td>1145 (23%)</td>
<td>269 (28%)</td>
</tr>
</tbody>
</table>
Outcomes by Time to Postop Ambulation

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>&lt; 8 Hours</th>
<th>8 - 24 Hours</th>
<th>&gt; 24 Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urinary Retention</td>
<td>313 (3%)</td>
<td>251 (5%)</td>
<td>89 (9%)</td>
</tr>
<tr>
<td>Readmitted within 90 Days</td>
<td>616 (5%)</td>
<td>334 (7%)</td>
<td>96 (10%)</td>
</tr>
<tr>
<td>Readmitted within 30 Days</td>
<td>361 (3%)</td>
<td>219 (4%)</td>
<td>68 (7%)</td>
</tr>
<tr>
<td>SSI</td>
<td>164 (1%)</td>
<td>94 (2%)</td>
<td>31 (3%)</td>
</tr>
<tr>
<td>At Least 1 Complication</td>
<td>1441 (12%)</td>
<td>892 (18%)</td>
<td>255 (26%)</td>
</tr>
<tr>
<td>Discharge Home</td>
<td>11447 (95%)</td>
<td>4456 (88%)</td>
<td>668 (69%)</td>
</tr>
<tr>
<td>Satisfied with Surgery at 90 Days</td>
<td>4962 (86%)</td>
<td>2132 (83%)</td>
<td>343 (80%)</td>
</tr>
<tr>
<td>PROMIS MCID at 90 Days</td>
<td>2307 (59%)</td>
<td>904 (57%)</td>
<td>116 (51%)</td>
</tr>
</tbody>
</table>
Multivariable Analysis

• Created regression models for each surgical outcome listed in previous table to adjust for potential confounding factors.
• Models adjusted for age, sex, BMI, diabetes, history of DVT, scoliosis, osteoporosis, coronary artery disease, ASA grade, smoking status, current depression, pre-op daily opioid use>6 months, previous spine surgery, baseline PROMIS, insurance, independently ambulatory pre-op, surgical invasiveness index, surgery duration, and area of spine (cervical or lumbar).
Summary

• Among cases with time recorded, the proportion of cases ambulating within 8 hours has increased from 59% (last year’s presentation) to 67%
• The outcomes of UR, any complication and discharge home showed positive associations with less than 8-hour ambulation as compared to 8 to 24 hours
• For sites and cases not ambulating within 8 hours, need to assess what the reasons may be and identify any potential barriers
Discussion
• Q&A button:

• Raise Hand button: