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A Quality Improvement Project to Reduce the Wait Time for Initial Appointment in an Urban Outpatient Sleep Center

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**Background**

- Weaver TE et al showed in 1997 that the pattern of CPAP utilization is established as early as day 4 of CPAP use.
- According to American Academy of Sleep Medicine, patients should be followed up in the first few weeks to establish utilization pattern and provide remediation if needed.
- So until 2015, patients were followed up in the sleep clinic within 1 week after the sleep study.
- But this lead to multiple face to face patient-physician contacts which in turn:
  - increases health care cost
  - patient inconveniences
  - increase wait time for scheduling new patients.

**Project aim**

In this study, we aimed to see if replacing one face-to-face follow-up visit after sleep study with a phone call by a trained office staff will:
- Decrease the total number of follow-up office visits, thus decreasing health care cost.
- Increase the number of new patients seen during the 6 months follow-up period.
- Did not decrease patient compliance.

**Methods**

- Retrospective chart review.
- Inclusion criteria:
  - Patients who were prescribed CPAP between January and February of 2015 and February of 2016 by a single board certified sleep physician.
  - Were included in the study.
- The patients were followed for 9 months.
- In 2015, patients were scheduled for a face-to-face evaluation with the physician within 7 days following the sleep study and study results and various aspects of CPAP treatments were discussed during the visit.

**Results**

- 120 patients and 145 patients had a sleep study between the months of January and February, in 2015 and 2016 respectively.
- Patients in both groups were similar except the those seen in 2015 were more likely to be obese (Table -1).
- The average age of the patients were 54.07 and 53.9.
- Mean AHI were 31.81 and 30.5 respectively.
- 52% vs 56% of the patient had history of hypertension while 12.5% vs 16.46% of patients had heart disease respectively.
- 90% of the patients were obese in 2015 group while only 65% were obese in 2016 group.

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2016</th>
<th>P value (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>40</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>54.07</td>
<td>53.9</td>
<td>0.9394 (0.507 to 5.47)</td>
</tr>
<tr>
<td>BMI</td>
<td>31.81</td>
<td>30.5</td>
<td>0.8404 (11.7 to 14.3)</td>
</tr>
<tr>
<td>AHI</td>
<td>11</td>
<td>11.7</td>
<td>0.5400 (3.08 to 1.82)</td>
</tr>
<tr>
<td>BMI</td>
<td>40.83</td>
<td>39.36</td>
<td>0.0361 (0.1 to 8.66)</td>
</tr>
<tr>
<td>CSH</td>
<td>21.80</td>
<td>21.55</td>
<td>0.8590</td>
</tr>
<tr>
<td>Heart disease</td>
<td>9/40 (22.5%)</td>
<td>9/55 (16.45%)</td>
<td>0.7714</td>
</tr>
<tr>
<td>DM</td>
<td>11/40 (27%)</td>
<td>18/55 (32.7%)</td>
<td>0.6556</td>
</tr>
<tr>
<td>Obesity</td>
<td>36/40 (90%)</td>
<td>36/55 (65%)</td>
<td>0.0072</td>
</tr>
</tbody>
</table>

Table 1: Baseline patient characteristics

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>2016</th>
<th>P value (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance at 3 months</td>
<td>19/40 (47%)</td>
<td>26/55 (47%)</td>
<td>0.000</td>
</tr>
<tr>
<td>Compliance at 6 months</td>
<td>11/40 (27%)</td>
<td>12/42 (28%)</td>
<td>1.000</td>
</tr>
<tr>
<td>Average no. of visits</td>
<td>1.45</td>
<td>1.2</td>
<td>0.0413 (0.02 to 0.08)</td>
</tr>
<tr>
<td>Average new patient visits</td>
<td>67.5/month</td>
<td>80.3/month</td>
<td></td>
</tr>
</tbody>
</table>

**Limitation**

- Compliance was defined by medicare criteria (70% of the nights for more than 4 hrs of CPAP use).
- Compliance at 3 month (47% vs 47%) and 6 month (27% vs 28%) were similar in both groups (Table -2).
- Retrospective study.
- Patients were evaluated by a single provider and the results may not be generalized.
- The introduction of phone calls after sleep study by trained office personnel significantly decreased the number of follow-up visits per patient and increased the number of new patients seen by the provider in the next 6 months.
- The compliance was not affected in spite of significantly less face-to-face contact with the provider.

**Conclusion**

- The project was successful in reducing the wait time for initial appointment in an urban outpatient sleep center.