**Results:** Of the 124 patients who underwent evaluation with AI mask fit software, 96% were male with an average AHI 35/hr, BMI 34 and average age of 58 years. Of the 65 patients who were new to PAP therapy, 14 patients required refitting, yielding an initial mask acceptance rate of 78%. Of the 59 patients established on PAP, 8 required subsequent mask switches, yielding a refit mask acceptance rate of 86%. Overall mask acceptance rate after first exposure to fitting software across both groups was 82%.
**Conclusion:** AI software appears to result in successful mask fitting in a high proportion of VA patients. Higher mask acceptance rate was noted in the refit group, suggesting a particular use-case for this software. Most importantly, this software allows for remote mask fitting. This is ideal given recent telehealth growth and can save time and visits, leading to expedited therapy and increased access.
**Support (If Any):**

## 0772

### CLUSTERS OF UPPER AIRWAY STIMULATION ADHERENCE PATTERNS IN THE FIRST 90 DAYS

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**Introduction:** Upper airway stimulation (UAS) therapy is effective for a subset of obstructive sleep apnea (OSA) patients with CPAP intolerance. While overall adherence is high, some patients have suboptimal adherence to UAS, which limits effectiveness. Our goal was to identify UAS therapy usage patterns during the first three months of therapy that affect adherence.
**Methods:** We retrieved anonymized UAS therapy usage data from 2,091 individuals stored in a cloud-based monitoring system during the first three months after device activation. We aggregated adherence data including mean and standard deviation (SD) of nightly hours of use, therapy pauses, hours from midnight when the therapy was turned ON and OFF, and percentage of missing days. We computed the difference of the stimulation amplitude between the first and last day. We performed cluster analysis with Gaussian mixture models and computed the centroids of each cluster highlighting their main differences.
**Results:** We identified six distinct clusters of UAS usage patterns. Clusters 1A (34% of the total cohort) and 1B (23%) had excellent therapy usage with 7.23h and 7.14h on days of use, respectively; with 1B distinguished by increased night-to-night variability. Clusters 2A (16%) and 2B (12%) had good mean therapy use of 6.63h and 6.21h, respectively, but their usage patterns were distinguished by a higher percentage of missing days (8% missing days in 2A and 23% in 2B) and less favorable therapy timing with an average therapy ON time after midnight. Clusters 3A (8%) and 3B (7%) were characterized by the lowest nightly use at 6.16h and 5.50h, respectively, and the highest night-to-night variability. 3A was further distinguished by the highest percentage of missing days (34%) while 3B was characterized by the frequent therapy pauses (mean 4.1 pauses per night) and the least increase in stimulation amplitude across the first 90 days.
**Conclusion:** Cluster analysis of UAS usage patterns identified six distinct groups that may enable custom interventions for improved long-term management. Differentiation of these groups may have clinical implications on conditions (e.g. therapy discomfort, comorbid insomnia, poor sleep hygiene) that impact adherence.
**Support (If Any):**

## 0773

### WHEN CPAPS ARE IN SHORT SUPPLY: A REVIEW OF OTHER FDA APPROVED OSA INTERVENTIONS

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**Introduction:** The CPAP recall of 2021 has highlighted an inherent problem that occurs when a field of medicine is overly dependent on a single class of medical devices to treat a condition. The global shortage of CPAP devices has led to numerous individuals with OSA being unable to obtain a CPAP machine to treat their condition, including those with severe OSA. CPAP is well known to be efficacious in treating OSA, but has limited effectiveness, particularly for mild-to-moderate cases. It has been reported that there are nearly 200 different medical devices approved by the FDA to treat OSA. The goal of this project was to search the FDA databases to investigate the number of devices currently on file with the FDA. A secondary goal was to examine the range of FDA product categories for the treatment of OSA.
**Methods:** An FDA database (AccessGUDID; https://accessgudid.nlm.nih.gov) with a release date of December 1, 2021 was searched for devices that are approved for the treatment of sleep apnea. The text string "sleep apnea" was used for the search. Diagnostic devices, duplicate versions of the same treatment devices, and device accessories were excluded from the total counts. The FDA classifies medical devices into three categories (I, II, III), with a higher classification level indicating greater risk to patients.
**Results:** The FDA AccessGUDID database search returned 166 results, which resulted in 72 unique devices across 10 product code categories. 9 of the 10 product codes in the FDA database were class II (medium risk) and 1/10 was classified as III (high risk). 65 of the devices were reported to be in commercial distribution at the time of the search and 7 were not.
**Conclusion:** This analysis found that a relatively large number of FDA-approved devices exist for the treatment of OSA across a range of product categories. The field is encouraged to develop a better understanding of which subgroups of OSA patients could benefit from alternative forms of treatment in an effort to diversify treatment options and reduce the field's reliance on a single type of device, particularly for patients with mild-to-moderate OSA.
**Support (If Any):** VA IIR 16-277

## 0774

### POSITIVE AIRWAY PRESSURE UTILIZATION, MAJOR ADVERSE CARDIOVASCULAR EVENTS INCIDENCE RISK AND MORTALITY IN MEDICARE BENEFICIARIES WITH OBSTRUCTIVE SLEEP APNEA

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**Introduction:** Positive airway pressure (PAP) is the first line treatment for moderate-severe or symptomatic obstructive sleep apnea (OSA). Randomized controlled trials have established that PAP therapy has beneficial impact on cardiovascular and metabolic functions. However, evidence on the benefits of PAP for preventing major adverse cardiovascular events (MACE) is limited. We aimed to determine the association between PAP utilization and incidence of MACE and all-cause mortality in a large sample of Medicare beneficiaries.
**Methods:** Medicare beneficiaries (>65 years) with at least 5 years of consecutive enrollment to part A and B and ≥2 distinct OSA