of symptoms prior to the diagnosis of severe pediatric OSA in relation to racial/ethnic background and geographic distribution.
**Methods:** This is a cross-sectional study enrolling children diagnosed with severe OSA in the Sleep Center of Children's National,Washington DC. Severe OSA was defined as obstructive apnea hypopnea index of >10 events/hr based on initial overnight polysomnogram. We used electronic medical record review to characterize individuals with severe OSA and stratified results based on racial/ethnic background and socioeconomic based geographic distribution in Washington, DC metropolitan area.
**Results:** We enrolled 179 eligible children with severe OSA (mean age 7.4 yrs ± 5.3SD) during the study period (Sep 2015- June2017). The majority of individuals were African American/Black (56.4%) followed by Hispanics (17.3%). Geographically,50.8% children were living in inner-city areas (DC wards 5–8 and PG County,MD) whereas 49.2% were located in suburban or urban wealthier areas of DC, MD or VA. The median time to diagnosis was 12 months in young children (0–7 yrs.) and 24 months in school age children/adolescents (>7yrs). Notably, African American/Black children >7 yrs of age had highest median time to diagnosis, which was >5 times greater than in age-matched Caucasian children (33 months vs. 6 months; p=0.02). Also, children >7 yrs of age with severe OSA living in inner-city areas had 3 times longer time to diagnosis than those located in suburban/urban wealthier areas (36 months vs. 12 months; p=0.01).
**Conclusion:** Our study suggests the presence of racial/ethnic and socioeconomic status based geographic disparities in the time to diagnosis of pediatric severe OSA. These findings indicate the critical need to focus care, resources and education to identify and treat pediatric OSA in minority communities of inner city areas.
**Support (If Any):**

## 0791

### VALIDATING THE USE OF PERIPHERAL ARTERIAL TONOMETRY IN DETECTING OBSTRUCTIVE SLEEP APNEA IN CHILDREN 5–12 YEARS OLD

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**Introduction:** The American Academy of Pediatrics suggests alternative testing to evaluate for obstructive sleep apnea (OSA) when polysomnogram (PSG) is not available. A potential alternative test is a wrist-worn peripheral arterial tonometry (PAT) with pulse oximetry and actigraphy (WatchPAT™ 200, Itamar Medical Israel). It utilizes a finger mounted plethysmograph and an automated algorithm to detect changes in peripheral arterial tone and oxygen saturation associated with sleep disordered breathing.
**Methods:** This prospective study evaluates PAT in diagnosing pediatric OSA in children 5–12 years. With 120 subjects, the study has 80% power to detect a significant agreement between PAT and PSG in diagnosing OSA. Subjects include patients referred for symptoms of OSA without complex medical histories. PSG was set-up concurrently with the PAT device. Data collected included demographics, clinical history, sleep related breathing disorder (SRBD) scale score, PSG and PAT device parameters. Statistics will include Wilcoxon signed-rank test, Spearman's correlation and Cohen's Kappa statistics to test agreement. OSA severity will be dichotomized into none/mild (AHI < 5 events/hour) or moderate/severe (AHI ≥ 5 events/hour).
**Results:** Thus far, one 5 year old female has completed the study. PSG had an AHI of 1.2 events/hour and RDI of 1.2 while the PAT device had a pAHI of 7.3 events/hour and pRDI of 12.9. Percentage of oxygen saturation <90% was 0.1% of sleep time for both. REM sleep was 17.6% for PSG and 23.48% for PAT while N1+N2 sleep was 56.6% for PSG and 47.12% for PAT. SRBD scale score was positive. Review of PSG video revealed obstructive breathing patterns with paradoxical respiration.
**Conclusion:** PAT showed higher AHI compared to PSG. Differences may be attributed to a discrepancy between probe and finger size and/or a suboptimal automated algorithm for this age group. Alternatively, PAT may detect some arousals absent in PSG's in younger children. More patients will be enrolled for statistical analysis.
**Support (If Any):** Four WatchPAT devices were lent to the Children's Hospital Colorado Sleep Laboratory and 120 probes were donated by Itamar Medical.

## 0792

### SCREENING OF PEDIATRIC OSA USING VIDEO MONITORING

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**Introduction:** According to ICDS-3 criteria, overnight polysomnography(PSG) is the gold standard tool for the diagnosis of pediatric obstructive sleep apnea(OSA) and adenotonsillectomy is the first line treatment for whom confirmed it. However, in Japan, the many of the patients are not able to access the specialized sleep medical facilities for PSG due to less availability and cost issues. Purpose of the study is to examine whether combination of video monitoring and other clinical examinations can reliably predict the severity of pediatric OSA compared with PSG.
**Methods:** In 49 children (age 3–12 years) suspected of having OSA, Video monitoring was performed during PSG. Other clinical examinations such as nocturnal oximetry($nSpO_2$), cephalogram, and rhinomanometry were conducted for all patient as well. Using multiple logistic regression analysis, AHI 5/hr and AHI 10/hr were set as dependent variable, and examined the accuracy of the predictor model.
**Results:** Regarding as severity above AHI 10/hr, independent predictor were video monitoring score (> 3) after 2 hours sleeping, nocturnal oximetry result (ODI 2%> 8/hr), rhinomanometry (> 0.5 $Pa/cm^3/sec$) and A/N ratio (> 60%) with an accuracy of predictive statistic model was 87.8 %, (sensitivity 95.8%, and specificity 76.5%).
**Conclusion:** Instead of PSG, the combination of video monitoring score and multiple clinical examinations could potentially provide reliable diagnostic approach for pediatric OSA especially for those may need early surgical indication (i.e. adenotonsillectomy) with high accuracy. These results will support to establish more efficient diagnostic strategy for both patients and physicians. Further investigations will need with more numbers to confirm the evidence.
**Support (If Any):**

## 0793

### HIGH MORTALITY IN SUBJECTS WHO UNDERGO TRACHEOTOMY AFTER INFANT POLYSOMNOGRAM

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**Introduction:** This study aimed to characterize the clinical courses and polysomnogram (PSG) results of subjects who received infant PSG and subsequently required tracheotomy, with eventual goal to identify risk factors for tracheotomy or mortality in infants who undergo PSG.