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## ABSTRACT

- Healthy People 2020 identifies sleep as a critical determinant of health and well-being. Obstructive sleep apnea (OSA) is the most common sleep-related breathing disorder. Obesity is a risk factor for OSA. There are no data available describing the nutritional needs of children with sleep-related disorders. The UF Health Sleep Center is one of the few accredited sleep centers which provides on-site Medical Nutrition Therapy (MNT) by a registered dietitian nutritionist (RDN) to pediatric patients. This abstract describes the characteristics of the children who received MNT through the Nutrition Care Process at the UF Health Sleep Center during 2015.
- Methods: A chart review was conducted to collect descriptive data from January 1, 2015 – December 31, 2015.
- Results: The RDN attended 20 clinics and provided MNT to 29% of children seen during this period. The most common diagnoses were OSA (66%) and Restless Leg Syndrome (9%). Obesity was diagnosed in 80% of the children, with an average BMI of 34 (>95th percentile). Five children required gastrostomy tube feedings. The intake domain was most often utilized for the nutrition diagnosis (33%). Payor sources were Medicaid (66%), and private insurance (34%). The majority of the children lived in rural communities with no local access to an RDN.
- Conclusion: RDN services are needed in the pediatric sleep disorders setting. Approximately 1/3 of children receiving treatment for sleep disorders over a 12 month period of time required MNT. Many had no previous contact with an RDN. Future research will address the outcomes related to RDN services in the sleep disorders clinic.

## BACKGROUND

- The University of Florida (UF) Pediatric Pulmonary Center (PPC) is one of 6 Maternal and Child Health Bureau-funded interdisciplinary training programs designed to develop leaders in the care of children with chronic respiratory conditions.
- PPC's also promote comprehensive, coordinated, family-centered, culturally sensitive systems of health care that serve the diverse needs of all families within their communities.
- Sleep health has been identified as a critical determinant of health and well-being by Healthy People 2020.
- The UF Health Sleep Center is one of the few accredited pediatric and adult sleep centers which provides on-site MNT by an RDN.

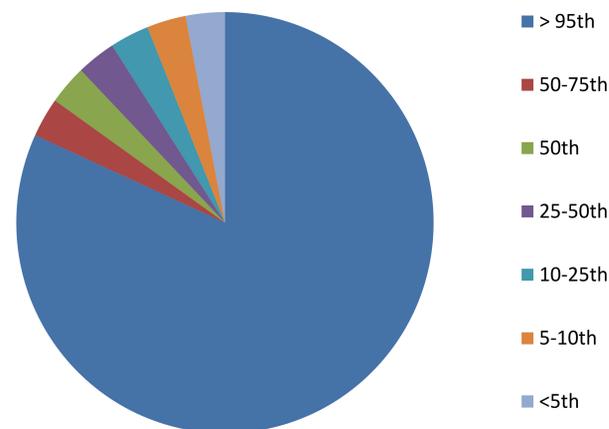
## PURPOSE

The purpose of this project was to review the descriptive data of children with sleep-related disorders who received MNT by a registered dietitian nutritionist.

## RESULTS

Sleep Diagnosis	N	Nutrition Implications	Need for RDN?
Obstructive Sleep Apnea	21	x	x
Restless Leg Syndrome	3	x	x
Narcolepsy	3	x	x
Congenital Hypoventilation Syndrome	2	x	x
Central Sleep Apnea	2	x	x
Other Diagnoses	4	x	x

Type of sleep diagnoses seen and need for RDN services



BMI percentiles of children with sleep-related disorders

Sleep Diagnosis	Seen by RDN	% Obese (BMI ≥95 %ile )
Obstructive Sleep Apnea	21	90 %
Other Diagnoses	14	27 %

Percentage of children with obesity based on sleep diagnosis

## PATIENT CASE EXAMPLES

### Case # 1

- 12-year-old boy with OSA (on CPAP), obesity, and asthma
- Nutrition diagnosis: Excessive energy intake related to portion sizes inadequate for age, inadequate amounts of physical activity, and excessive consumption of high calorie/high fat foods as evidenced by BMI of 34.7 (>99<sup>th</sup> %ile for age) and weight gain of 1.3 kg over 2 months.
- Intervention: Discussed the role of weight management in OSA with boy and his family. Recommended decreasing portion size and provided a "Portion Distortion" handout for children. Encouraged boy to explore MyPlate for kids. Boy will join school soccer team as physical activity goal.

### Case # 2

- 4 month old girl with OSA, trisomy 21, congenital central hypoventilation syndrome, and poor weight gain
- Nutrition diagnosis: Inadequate energy intake related to increased needs of trisomy 21 and hypotonia resulting in weak suck as evidenced by average daily weight gain 16 grams per day.
- Intervention: Recommended fortifying human milk to 24 kcal/oz to provide 187 kcal/kg/day. New formula prescription of 1.5 tsp Enfacare® to 4 oz human milk.

### Case # 3

- 9 year old boy with Restless Leg Syndrome and iron deficiency
- Nutrition diagnosis: Altered nutrition related lab values (iron status) related to Restless Leg Syndrome as evidenced by abnormal serum ferritin, transferrin and total iron binding capacity levels.
- Intervention: Recommended iron-rich foods and educated family on vitamin C and iron intake. Provided a handout on "Iron and Restless Leg Syndrome". Recommended repeating iron profile in 8 weeks.

## CONCLUSION

- RDN services are needed for children with sleep-related disorders.
- Of the children seen by an RDN at the UF Health Sleep Center, MNT was provided primarily for concerns related to obesity.
  - Other nutrition concerns included inadequate intake and altered nutrition-related lab values.
- More research is needed to determine outcomes of RDN services for this population of children.

## REFERENCES

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