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5-2021

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Medicaid Expenditures Among Children with Documented Obesity

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Disclosure

All authors
Have documented no financial relationships to disclose or Conflicts of Interest (COIs) to resolve.

Background

- Obesity is a common problem for children with many negative health effects
- Obesity is associated with increased utilization across different settings
- Less is known about how obesity affects healthcare expenditures among children in a nationally representative sample
- Improved understanding of expenditures could provide targets for future research or improvement interventions

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Study Objectives

1. To describe health care expenditures for children with diagnosed obesity enrolled in Medicaid
2. To identify characteristics associated with high spending among children with obesity

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Methodology

- Retrospective cross-sectional study of Medicaid claims data
- 2017 Marketscan Medicaid database (IBM; Ann Arbor, MI)
- Inclusion criteria:
  - Age 2-17 years
  - Continuously enrolled in Medicaid in 2017
  - With ICD-10 diagnosis code for obesity

Methodology

- Grouped based on per member per year (PMPY) expenditures

Spending Groups

<80th% PMPY spending	80-94th% PMPY spending	95-98th% PMPY spending	≥99th% PMPY spending
< $3,185	$3,186-$11,006	$11,007-$39,235	> $39,236

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Methodology

- Differences in PMPY expenditures by spending group were compared across:

Demographic characteristics	Clinical characteristics	Expenditure types
- Age - Sex - Race/ethnicity	- Common obesity co-morbid conditions - Number complex chronic conditions - Number mental health conditions	- Inpatient - Outpatient - Pharmacy

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Statistical Analysis

- Kruskal-Wallis tests: Differences in PMPY expenditures across spending groups
- Logistic regression: measure association between demographic and clinical characteristics for those in the higher spending groups (≥95th%)

Cohort description

- 300,286 patients aged 2-17 years with obesity

Age	2-5 years	15.1%
	6-11 years	40.2%
	12-17 years	44.7%
Race/ ethnicity	Non-Hispanic White	45.7%
	Non-Hispanic Black	36.3%
	Hispanic	14.2%
	Other	3.8%
Sex	Male	49.4%
	Female	50.6%

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Cohort description

Obesity comorbid conditions	Asthma	18.6%
	Dyslipidemia	5.2%
	Pre-diabetes	2.8%
	Hypertension	2.7%
	Obstructive sleep apnea	2.6%
	Diabetes mellitus	1.4%
	Non-alcoholic fatty liver disease	0.9%
	Polycystic ovarian syndrome	0.6%
Number of complex chronic conditions	0	87.7%
	1	10.5%
	2-3	1.7%
	4+	0.1%
Number of mental health conditions	0	67.7%
	1	15.8%
	2-3	11.5%
	4-5	3.3%
	6+	1.6%

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PMPY expenditures by spending group

	Spending Group			
	<80th%	80-94th%	95-98th%	≥99th%
Total Annual Expenditures	$337,117,782	$272,948,031	$224,771,768	$283,954,822
Number of Children	240,215	45,057	12,011	3,003
Percent of Children	80.0%	15.0%	4.0%	1.0%
Percent of Expenditures	30.1%	24.4%	20.1%	25.4%

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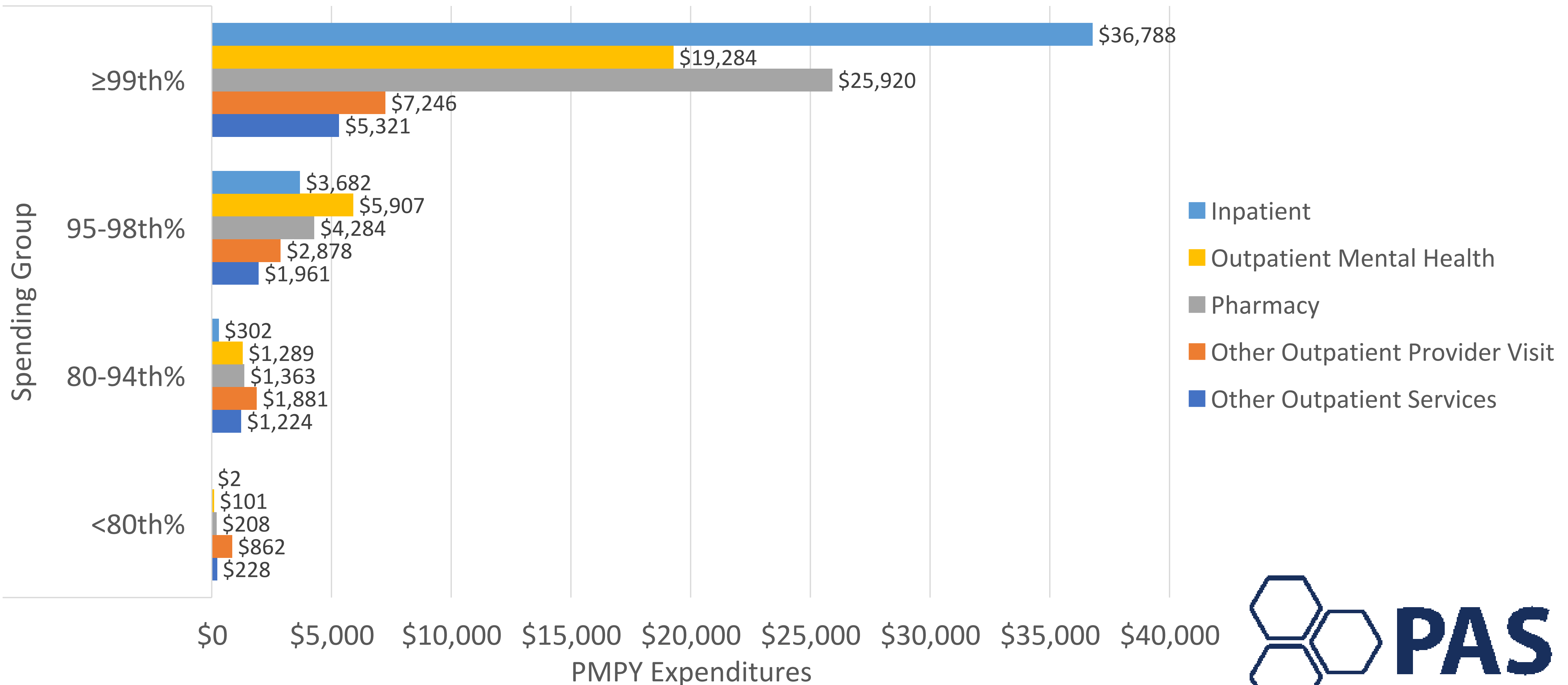
PMPY Expenditures by Spending Group



Results – Top 5% spenders

Inpatient

- >45% of all discharges for mental health conditions
- ~25% of expenditures for mental health hospitalizations

Outpatient Mental health

- Approximately 50% of expenditures for outpatient professional services
- Most common diagnoses: ADHD (13.8%), trauma/stressor related disorder (7.6%), depression (7.2%), anxiety (6.7%)

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Factors associated with high spending

		aOR	LCL	UCL
Age	2-5 years		Reference	
	6-11 years	1.19	1.09	1.29
	12-17 years	1.71	1.58	1.85
Obesity comorbid conditions	Hypertension	1.77	1.63	1.93
	Dyslipidemia	1.23	1.14	1.33
	Non-alcoholic fatty liver disease	1.78	1.54	2.07
	Diabetes	5.73	5.22	6.30
	Obstructive sleep apnea	2.95	2.73	3.20
	Asthma	1.93	1.85	2.02
Number of Complex Chronic Conditions	0		Reference	
	1	2.34	2.23	2.47
	2-3	5.05	4.62	5.52
	4+	46.31	29.61	72.44
Number of mental health conditions	0		Reference	
	1	3.09	2.90	3.30
	2-3	8.76	8.29	9.27
	4-5	29.41	27.57	31.37
	6+	131.84	121.88	142.62

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Discussion

- Primary expenditure drivers among children with obesity
    - Inpatient (mental health)
    - Outpatient mental health

- Other studies examining Medicaid expenditures for various populations of children have found similar trends
    - Medical complexity increases spending
    - Common drivers of cost: inpatient and mental health care

Limitations

- Inclusion of only patients with diagnosis code for obesity
    - Limited ability to create a comparator group of children without obesity

- ICD-10 codes for children do not allow for differentiation of those with severe obesity (Class II and III obesity)

Conclusions

- Top 5% of expenditures for children with obesity driven by inpatient care, mental health care
- Children with certain demographic and clinical characteristics are more likely to be in the top 5% of spenders
- Efforts to better understand the ties between obesity and mental health are crucial
- Improved medical/behavioral health capacity is needed for earlier intervention for co-morbid mental health conditions

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