

# A Claims-based Analysis of Weight Management in Pediatric Populations Covered by Commercial or Medicaid Insurance

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### Study Summary

**Study Question:** Has the childhood obesity epidemic altered pediatric weight management practices in the US, including both coding in general clinical practice and therapy options?

**Study Design:**

**Study Results:**

**Conclusion:** Utilization of diagnosis codes to record patient weight status is increasing in the administrative claims record over time. Continued advancement of weight coding will help researchers to understand the management of pediatric obesity in the US.

## Methods, Cont.

### Study Design and Outcomes

- Annual cohorts of pediatric patients (<18 years of age as of December 31 of the calendar year) with continuous medical and pharmacy eligibility for the whole year and ≥1 outpatient office visit during the year were selected for the 2016, 2018, 2020, and 2022 calendar years.
- The proportion of patients with weight information coded (via ICD-10 pediatric BMI percentile codes [Z68.5x]) along with percentage of patients falling into four weight classes (underweight, normal weight, overweight, obese) was assessed in the annual cohorts. Weight subgroups were classified as follows:
  - Underweight: presence of Z68.51 BMI pediatric, less than 5<sup>th</sup> percentile for age with no evidence of other weight category BMI codes
  - Normal weight: presence of Z68.52 BMI pediatric, 5<sup>th</sup> percent to <85<sup>th</sup> percent for age with no evidence of other weight category BMI codes
  - Overweight: presence of Z68.53 BMI pediatric, 85<sup>th</sup> percent to <95<sup>th</sup> percent for age with no evidence of other weight category BMI codes
  - Obese: presence of Z68.54 BMI pediatric, ≥ or equal to 95<sup>th</sup> percent for age with no evidence of other weight category BMI codes
- Within each weight class, utilization of interventions (nutrition counseling, anti-obesity medication use [overweight and obese groups only], and bariatric surgery [obese group only]) were also examined.

## Results

- There were approximately 3 million pediatric patients with continuous eligibility and ≥1 outpatient office visit in each calendar year in each of the commercial and Medicaid samples (Figure 1).
- Commercially insured patients were more likely to have an office visit during the year compared to Medicaid patients (commercial: 78.9%-84.1%; Medicaid: 62.9%-72.2%).
- Among patients with a visit, there were notable increases in the proportion of pediatric patients with ≥1 BMI code over the study period (Figure 2).
- The proportion of commercial patients with ≥1 BMI code more than doubled from 2016 to 2022.
- A 1.7-fold increase in the proportion of patients with ≥1 BMI code was observed from 2016 to 2022 in the Medicaid sample
- Medicaid patients were consistently more likely to have ≥1 BMI code during the year compared to commercial patients.

## Background

- Pediatric obesity, defined as a BMI percentile ≥95% based on age and sex, is associated with increased physical comorbidity burden (e.g., cardiovascular disease, type 2 diabetes, liver disease, etc.), increased risk of mental health conditions, and life-long health impacts that can lead to increased mortality.<sup>1-5</sup>
  - Due to the association between pediatric obesity, comorbidity, and the potential for long-term impacts on health the American Academy of pediatrics has termed childhood obesity an “epidemic within an epidemic”.<sup>4-5</sup>
  - As a result of long-term health impacts, bariatric surgery is increasingly becoming an option for pediatric patients.
- Rates of pediatric obesity have been on the rise globally; within the US estimates indicate that the prevalence of childhood obesity has tripled in the last 40 years.<sup>1-3</sup>
- The CDC estimated a prevalence of pediatric obesity of 19.7% between 2017 and 2020, translating to over 14 million impacted children and adolescents.<sup>6</sup>
  - Obesity has also been shown to disproportionately impact specific groups with rates of childhood obesity closer to 25% in Hispanics and non-Hispanic blacks; conversely, obesity rates are closer to 10% among children whose families income is >350% over the federal poverty line.

## Objective

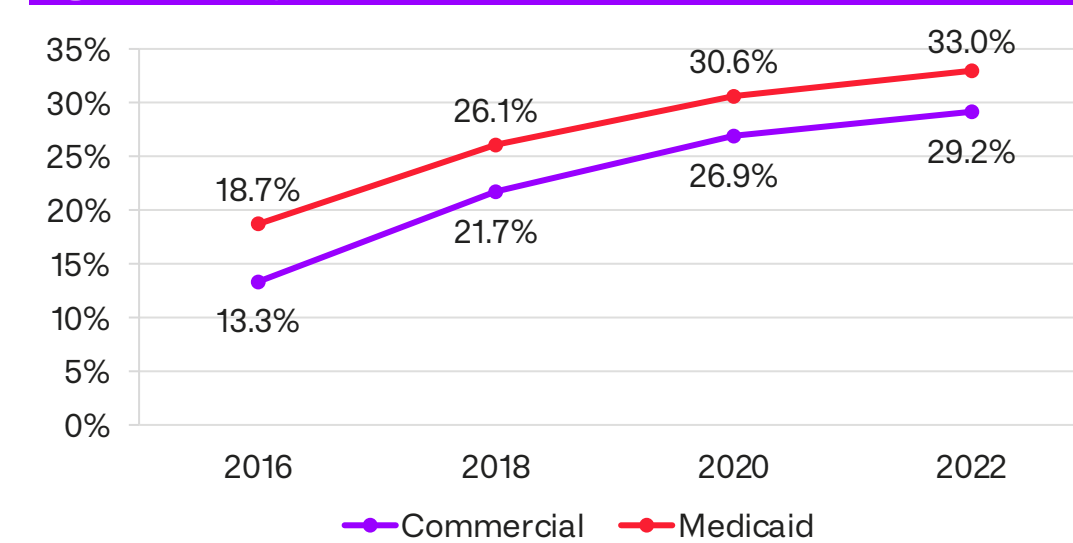
- To investigate recent trends in administrative claims-based coding of pediatric weight status, as well as utilization of different weight management approaches, within populations with commercial or Medicaid insurance.

## Methods

### Data Sources

- Merative™ MarketScan® Commercial Claims and Encounters Database and the Merative™ MarketScan® Multi-state Medicaid Database
  - Data from 1/1/2016 through 12/31/2022 were used for analyses.
  - The MarketScan administrative claims databases contain data on the full healthcare experience (inpatient, outpatient, and outpatient pharmacy) for individuals with employer sponsored commercial or Medicaid insurance in the United States.
- The MarketScan data was accessed using Treatment Pathways 4.0, an online analytic platform.

Figure 2. Proportion of Patients with BMI Codes



- There was also a slight trend towards an increasing number of BMI codes over time among Medicaid patients with ≥1 BMI code in the calendar year, especially in the obese subgroup (Figure 3).
- The same trend was not observed in the commercial population.

Figure 3. Annual Number of BMI Codes

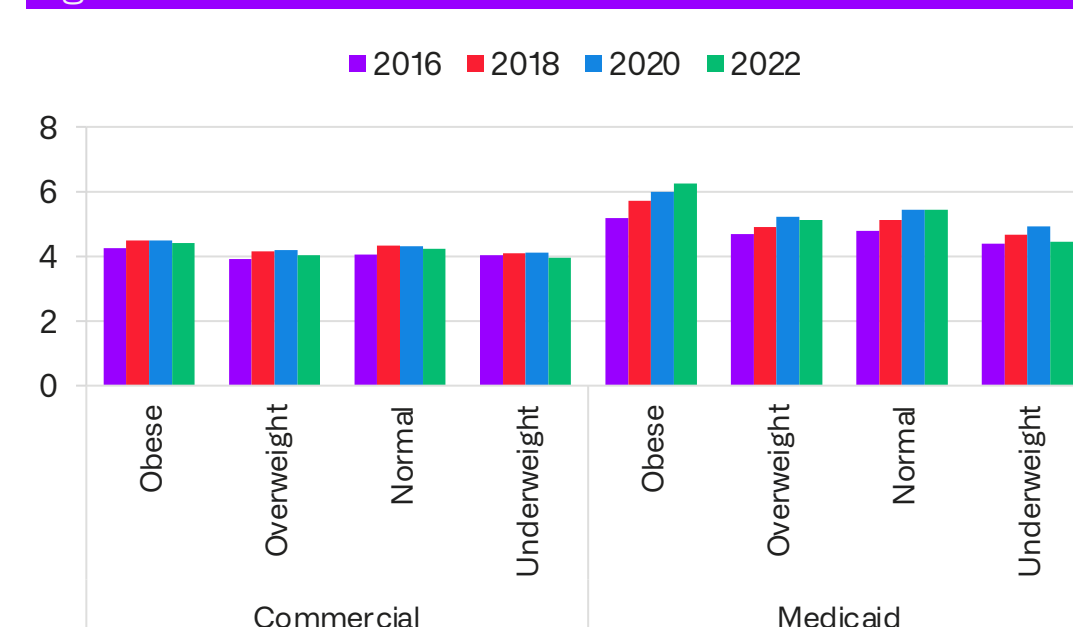
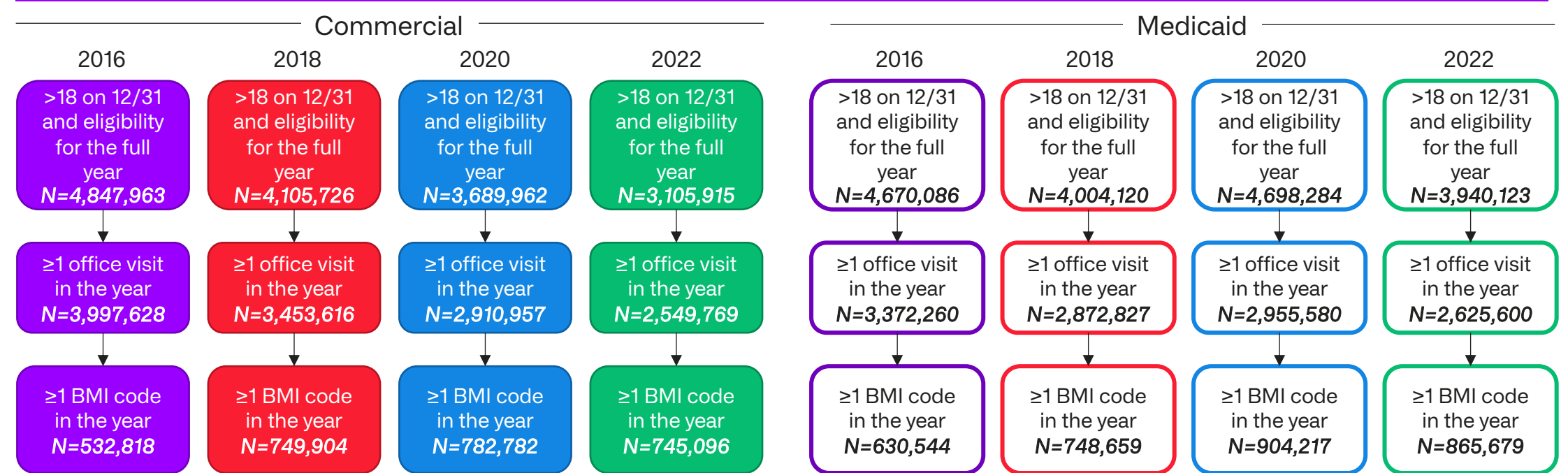


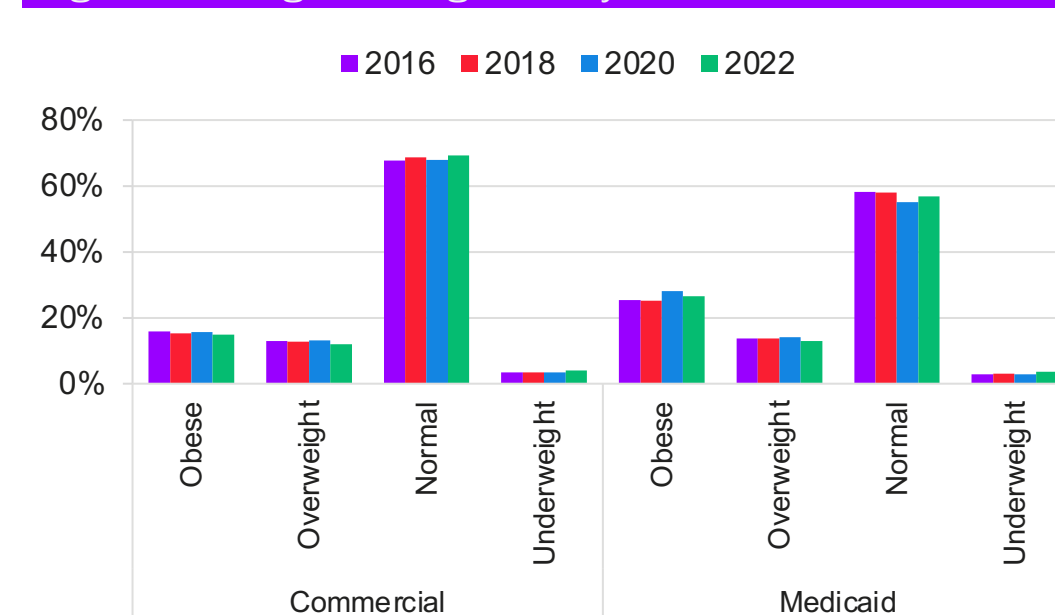
Figure 1. Patient Selection



## Results, Cont.

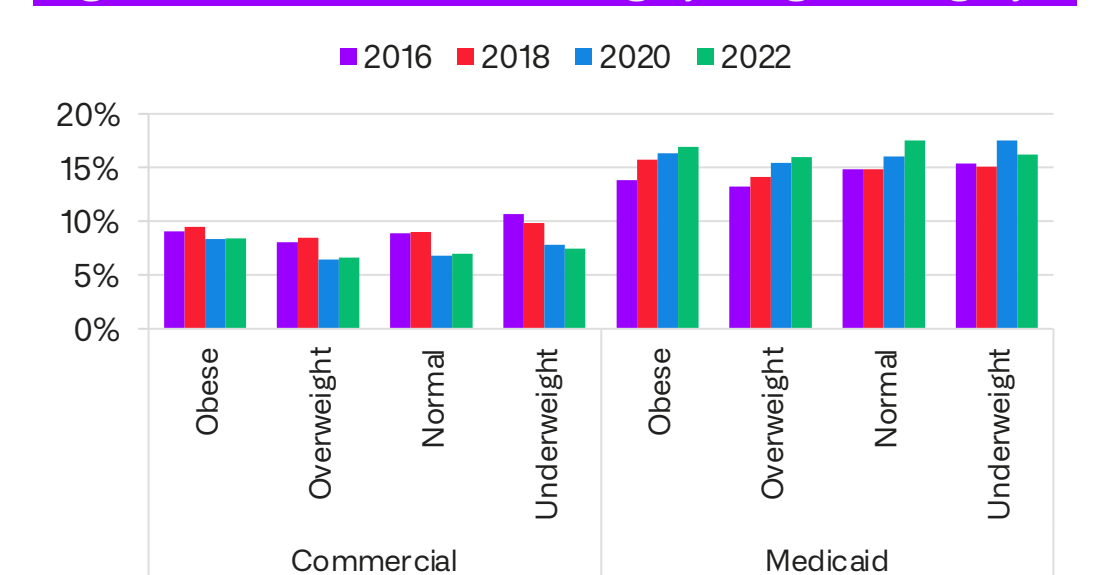
- Over 90% of patients with ≥1 BMI code in the year had codes for a single weight category and were able to be classified into a weight group.
- In both the commercial and Medicare samples, patient age increased across increasing weight classes.
- In the commercial sample, obese (53.5%-54.8%) and underweight (53.9%-56.3%) patients were more likely to be male; the trend held in the underweight group for the Medicaid sample as well (53.7%-55.4% male).
- The proportion of patients in each of the four weight class groups was largely similar across the four study years in both the commercial and Medicaid samples (Figure 4).
- The majority of patients in both the commercial (67.7%-69.2%) and Medicaid (55.1%-58.2%) cohorts were classified as normal weight.
- In the commercial sample there were similar proportions of patients in the overweight (12.0%-13.1%) and obese (14.9%-15.9%) subgroups, while the proportion of patients in the obese subgroup (25.2%-28.0%) was double that of the overweight subgroup (13.0%-14.0%) in the Medicaid sample.

Figure 4. Weight Categories by Year



- Of the three interventions assessed, nutritional counseling was the most common intervention in all weight groups (Figure 5).
- Medicaid patients were more likely to receive nutritional counseling compared to their commercial peers.
- Utilization of anti-obesity medications was examined among patients living with overweight or obesity.
- The 2022 calendar year had the greatest proportion of patients with ≥1 fill for an anti-obesity drug at 0.14% of commercial patients and 0.02% of Medicaid patients.
- Bariatric surgery procedures were rare among pediatric patients living with obesity.
- Between 0.02% and 0.03% of commercial patients had a bariatric surgery procedure in each of the calendar years.
- In the Medicaid sample, the proportion of patients with a bariatric surgery procedure increased from 0.02% in 2016 to 0.07% in 2022.

Figure 5. Nutritional Counseling by Weight Category



## Limitations

- This study included pediatric patients with commercial or Medicaid insurance and may not generalize to children or adolescents with other types of insurance or the uninsured.
- Body weight codes were available for fewer than 50% of patients; thus, caution should be used in extending findings to the broader sample of US children and adolescents.

## Conclusions

- Claims-based reporting of weight, via ICD-10 diagnosis codes, has increased in pediatric populations over recent years, coincident with increasing rates and national awareness of childhood obesity.
- Despite its limited efficacy in long-term weight management in pediatric populations, nutritional counseling is the primary intervention in pediatric populations and was used at similar rates across all weight groups.
- Bariatric surgery is rare populations but increased in frequency towards the end of the study period, potentially reflecting updated treatment guidelines.
- Compared to their commercially insured peers, children covered by Medicaid are more likely to have weight status reported in claims.
  - Medicaid patients with weight status reported are more likely to be classified as obese compared to commercial patients.
- Given the potential long-term health implications of childhood obesity, further research is warranted.
  - Research should consider social determinants of health given the results of this study and previously published associations between weight and various social and economic factors.

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## Disclosure

All authors are employees of Merative who provided funding for this study.

