# Pediatric Overweight & Obesity

## Clinica de Salud del Valle de Salinas

EHR Analysis | 2020 – 2025 | Ages 2–19

Data Source: NextGen Report Server

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**22.4%**
6-Year Cumulative Incidence*

**16,628**
Pediatric Patients

**10**
Clinic Sites

# Objective

## Study of Overweight and Obesity in Pediatric Patients at CSVS

Characterize the incidence, severity distribution, and site-level variation of pediatric overweight and obesity across all CSVS clinic sites.

### Time Frame

January 2020 – December 2025
(6 calendar years) based on date of service

### Age Range

2 – 19 years
(age calculated from date of birth)

### Data Source

NextGen Report Server (3/31/26)
EHR encounter-level exports with ICD-10 diagnosis fields

### Population

All pediatric patients (ages 2–19) with ≥1 encounter
at any of 10 CSVS clinic sites during the study period

# Methods & Definitions

## ICD-10 / Z-Code Capture

**E66.01**
Severe obesity (excess cal.)

**E66.09**
Other obesity (excess cal.)

**E66.1**
Drug-induced obesity

**E66.2**
Morbid obesity w/ hypovent.

**E66.3**
Overweight

**E66.8 / E66.9**
Other / unspecified obesity

**Z68.53**
BMI 85th–<95th percentile

**Z68.54**
BMI ≥ 95th percentile

## Weight Classification (CDC/AAP)

| Category | BMI Percentile |
|---|---|
| Overweight | 85th to < 95th |
| Obesity (Class I) | ≥ 95th to < 120% of 95th |
| Severe (Class II) | ≥ 120% of 95th or BMI ≥ 35 |

## Definition of a Case

Any unique patient (by MRN) with ≥1 encounter carrying an overweight or obesity ICD-10 code (E66.01, E66.09, E66.1, E66.2, E66.3, E66.8, E66.9) or pediatric BMI percentile Z-code (Z68.53, Z68.54) during the study period (2020-2025).

## Incidence

Unique patients with ≥1 encounter with overweight/obesity diagnosis ÷ unique patients with ≥1 encounter, within the defined period and stratum × 100%.

## Denominator Definitions

### 6-Year Cumulative

All unique patients (by MRN) aged 2–19 with ≥1 encounter at any CSVS site during 2020–2025.

**n = 16,628**

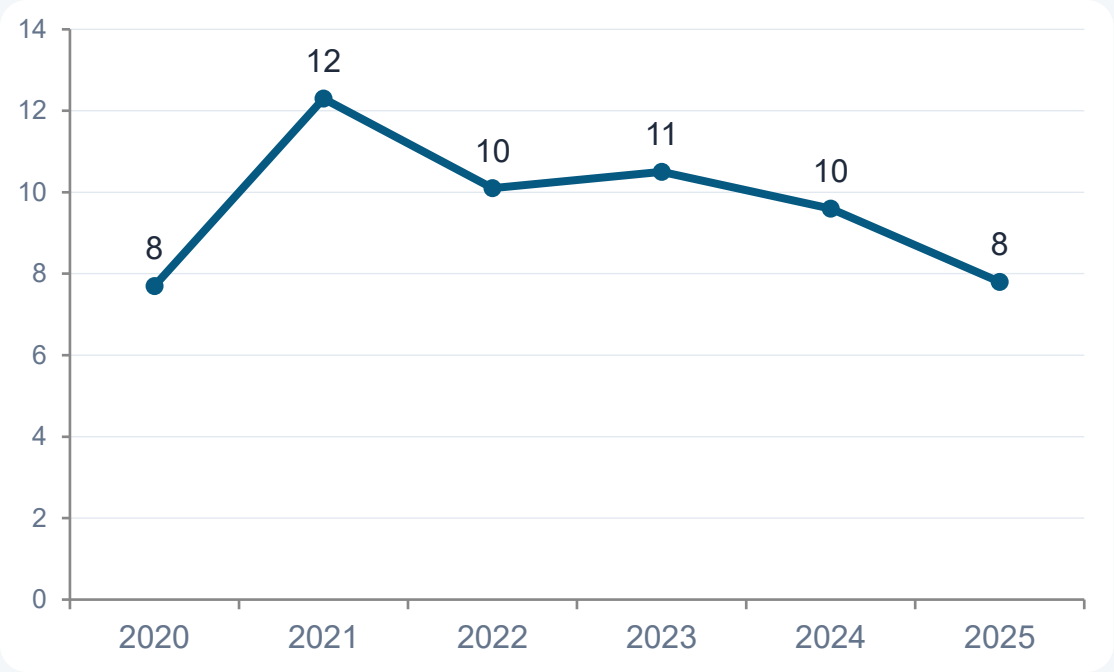
### Annual

All unique patients (by MRN) aged 2–19 with ≥1 encounter at any CSVS site during that specific calendar year.

*A patient seen in multiple years appears in each year's annual denominator but only once in the cumulative denominator.*

# Incidence (%) Trend by Year

Unique patients with ≥1 overweight/obesity diagnosis per year

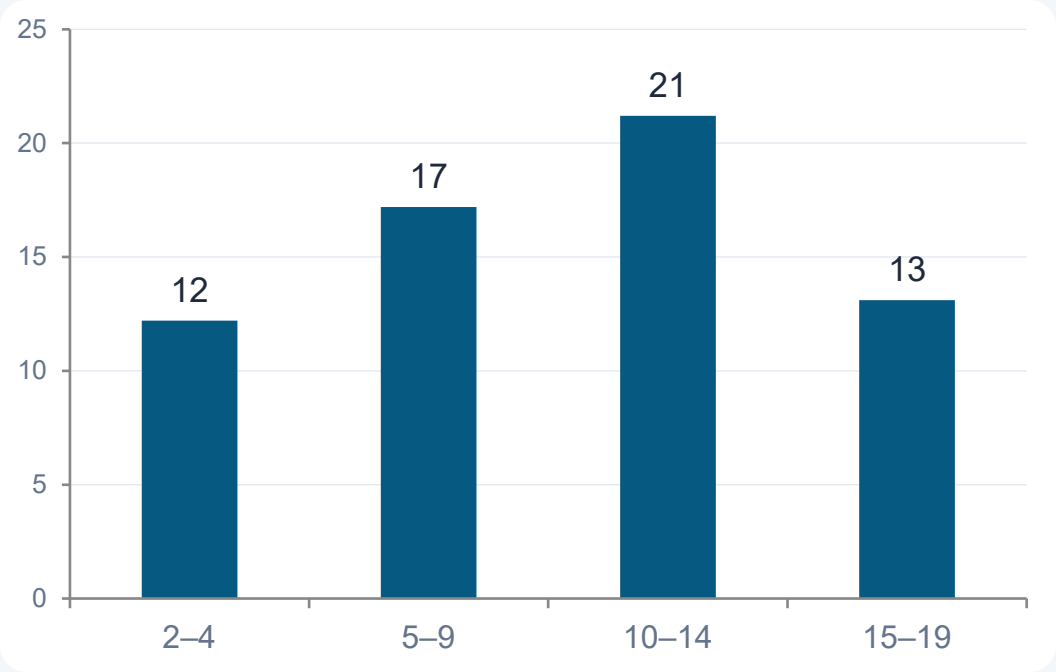



| Year | Denom | Cases | % |
|---|---|---|---|
| 2020 | 7,236 | 559 | 7.7% |
| 2021 | 7,560 | 930 | 12.3% |
| 2022 | 8,830 | 891 | 10.1% |
| 2023 | 9,859 | 1,038 | 10.5% |
| 2024 | 10,640 | 1,026 | 9.6% |
| 2025 | 10,901 | 845 | 7.8% |

Peak in 2021 (12.3%) — post-pandemic rebound in visits?

# Incidence (%) by Age Group

Unique patients with ≥1 overweight/obesity encounter, 2020–2025

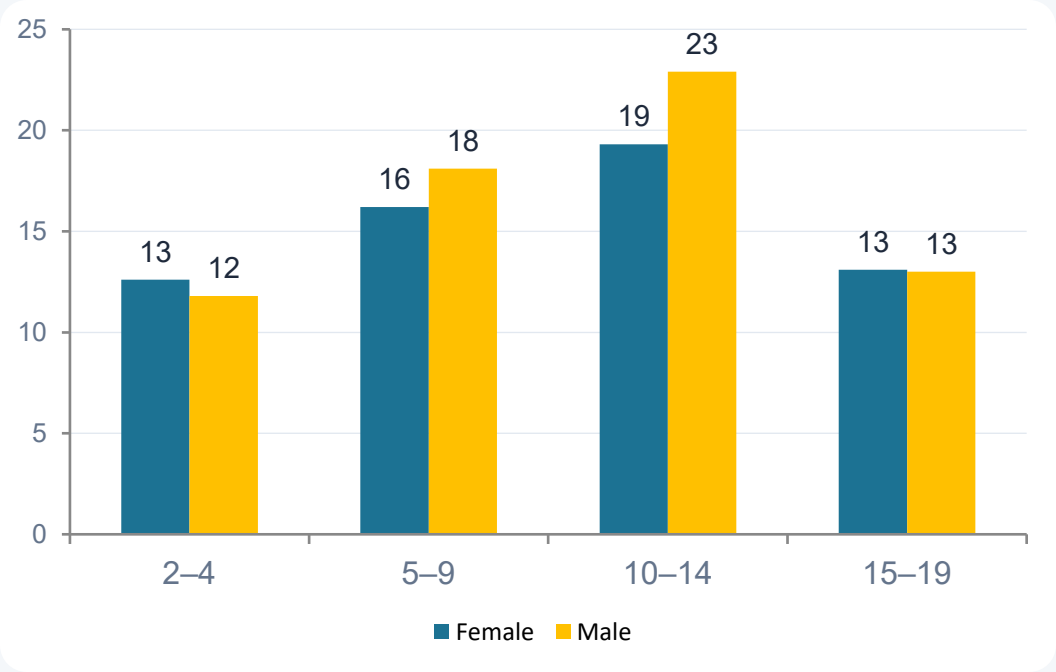



| Age Group | Denom | Cases | % |
|---|---|---|---|
| 2–4 | 6,315 | 768 | 12.2% |
| 5–9 | 8,401 | 1,443 | 17.2% |
| 10–14 | 7,735 | 1,637 | 21.2% |
| 15–19 | 3,019 | 394 | 13.1% |

Peak incidence in 10–14 age group at 21.2%

# Incidence (%) by Age Group & Sex

Unique patients per stratum, 2020–2025

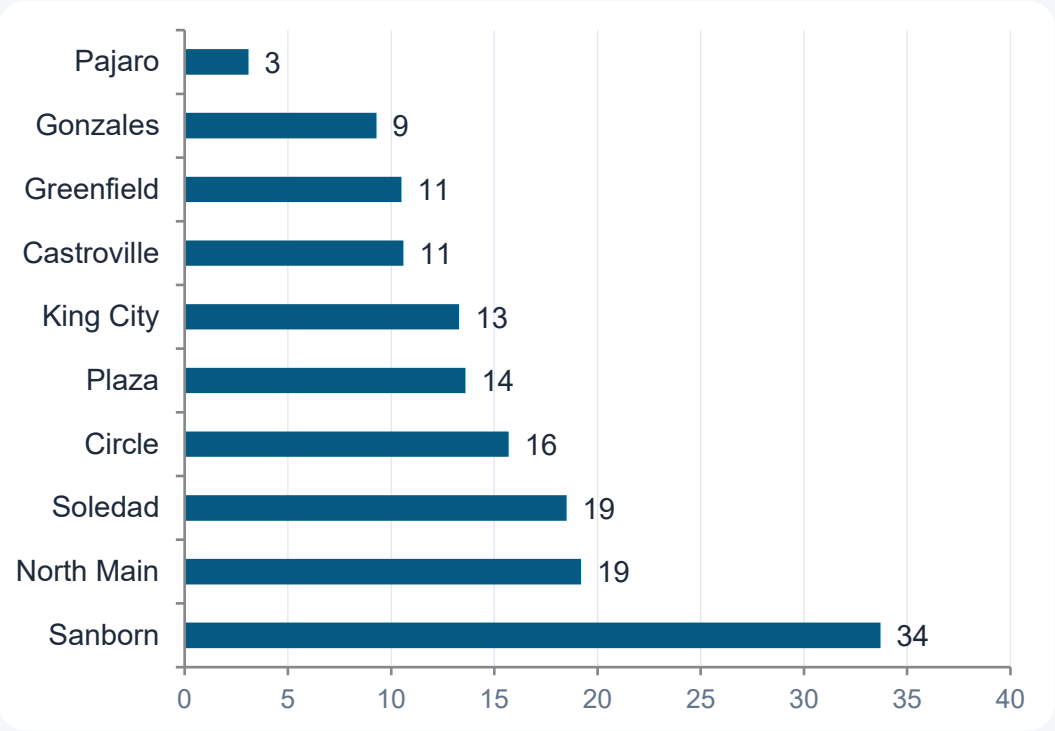



| Age | Sex | Denom | Cases | % |
|---|---|---|---|---|
| 2–4 | F | 3,141 | 395 | 12.6% |
| 2–4 | M | 3,174 | 373 | 11.8% |
| 5–9 | F | 4,169 | 676 | 16.2% |
| 5–9 | M | 4,232 | 767 | 18.1% |
| 10–14 | F | 3,798 | 734 | 19.3% |
| 10–14 | M | 3,937 | 903 | 22.9% |
| 15–19 | F | 1,505 | 197 | 13.1% |
| 15–19 | M | 1,514 | 197 | 13.0% |

Males 10–14 show highest incidence (22.9%)

# Incidence (%) by Clinic Site

Unique patients, 2020–2025 (excludes Mobile Medical — 1 patient, 0 cases)

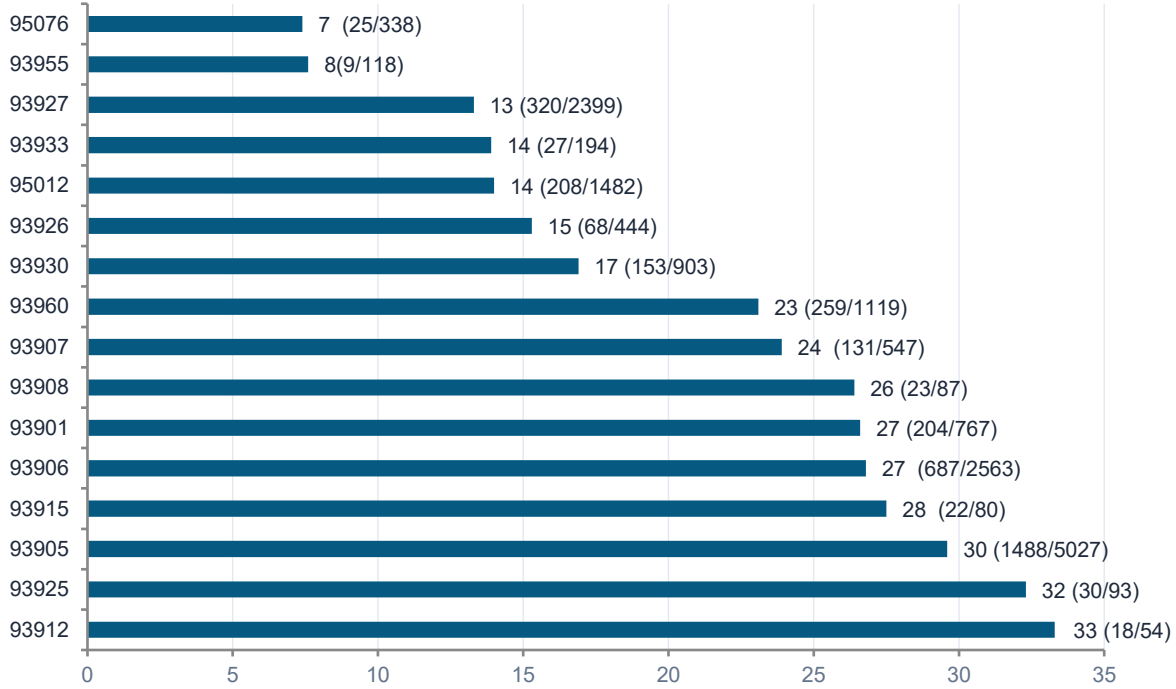



| Clinic Site | Denom | Cases | % |
|---|---|---|---|
| Sanborn | 4,740 | 1,598 | 33.7% |
| North Main | 2,350 | 452 | 19.2% |
| Soledad | 1,522 | 281 | 18.5% |
| Circle | 4,077 | 640 | 15.7% |
| Plaza | 806 | 110 | 13.6% |
| King City | 1,163 | 155 | 13.3% |
| Castroville | 2,289 | 243 | 10.6% |
| Greenfield | 2,487 | 260 | 10.5% |
| Gonzales | 1,156 | 107 | 9.3% |
| Pajaro | 1,178 | 36 | 3.1% |

Sanborn at 33.7% — 1.8× the next highest site

# Zip Code Analysis

Incidence by zip code — explaining site-level variation (zip codes with ≥50 patients)

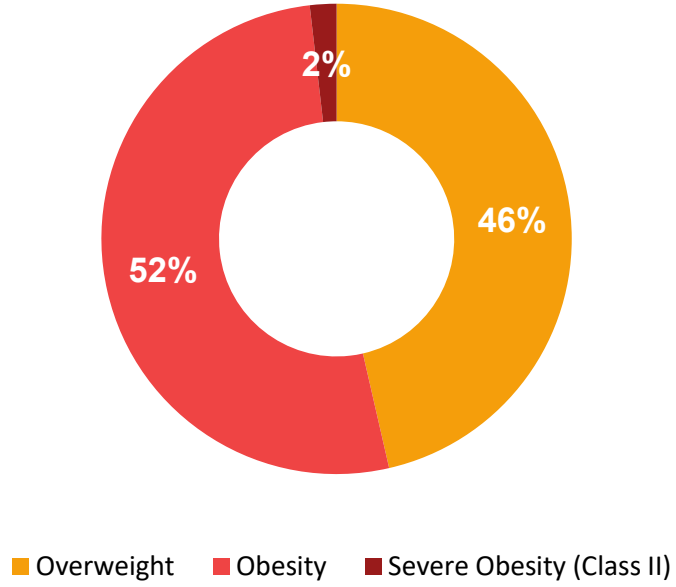



| Zip | Denom | Cases | % |
|---|---|---|---|
| 93912 | 54 | 18 | 33.3% |
| 93925 | 93 | 30 | 32.3% |
| 93905 | 5,027 | 1,488 | 29.6% |
| 93915 | 80 | 22 | 27.5% |
| 93906 | 2,563 | 687 | 26.8% |
| 93901 | 767 | 204 | 26.6% |
| 93908 | 87 | 23 | 26.4% |
| 93907 | 547 | 131 | 23.9% |
| 93960 | 1,119 | 259 | 23.1% |
| 93930 | 903 | 153 | 16.9% |
| 93926 | 444 | 68 | 15.3% |
| 95012 | 1,482 | 208 | 14.0% |
| 93933 | 194 | 27 | 13.9% |
| 93927 | 2,399 | 320 | 13.3% |
| 93955 | 118 | 9 | 7.6% |
| 95076 | 338 | 25 | 7.4% |

Zip codes 93905/93906/93901 = 50% of entire population — all with incidences > 26%.
Sanborn serves 85% of these zipcodes combined. The elevated site rate for Sanborn Clinic therefore reflects a **local community burden**, not a practice characteristic.

# Classification Breakdown

Distribution among 3,721 patients with overweight/obesity (of 16,628 total pediatric patients)




| Category | Patients | % of Cases | % of All Pediatric |
|---|---|---|---|
| Overweight | 1,727 | 46.4% | 10.4% |
| Obesity | 1,926 | 51.8% | 11.6% |
| Severe Obesity (Class II) | 68 | 1.8% | 0.4% |
| **Total** | **3,721** | **100%** | **22.4%** |

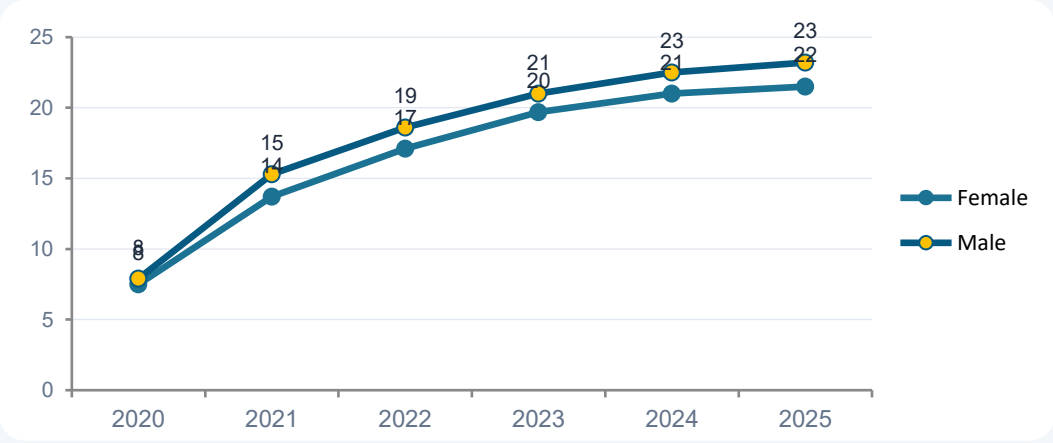
**% of Cases** = share within the 3,721 overweight/obesity patients

**% of All Pediatric** = incidence against full denominator of 16,628 unique patients

# Rolling Cumulative Incidence

Cumulative build by year and sex — captures patients whose diagnosis appears in later encounters

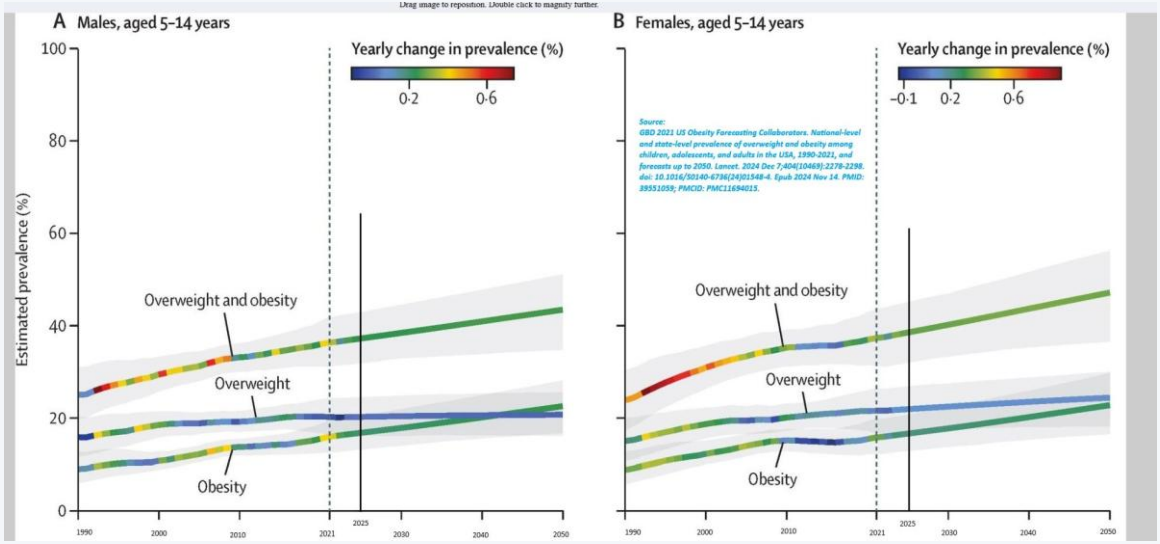
| Through Year | Female Denom | Female Cases | Female % | Male Denom | Male Cases | Male % |
|---|---|---|---|---|---|---|
| 2020 | 3,543 | 266 | 7.5% | 3,693 | 293 | 7.9% |
| 2020–21 | 4,563 | 625 | 13.7% | 4,730 | 725 | 15.3% |
| 2020–22 | 5,488 | 937 | 17.1% | 5,698 | 1,062 | 18.6% |
| 2020–23 | 6,395 | 1,260 | 19.7% | 6,599 | 1,388 | 21.0% |
| 2020–24 | 7,379 | 1,549 | 21.0% | 7,595 | 1,709 | 22.5% |
| 2020–25 | 8,225 | 1,767 | 21.5% | 8,405 | 1,954 | 23.2% |




*Males consistently higher; both approach ~22–23% by 2025. Asymptotic pattern confirms diminishing new case capture over time.*

# National Comparison

CSVS vs GBD (Global Burden of Disease) 2021 US Obesity Forecasting (Lancet, 2024)-- Age 5-14 yrs, by Gender




| Source | Males | Females | Method |
|---|---|---|---|
| GBD 2021 (US, ~2025) | ~35% | ~30% | BMI-measured |
| CSVS (cumulative) | 23.2% | 21.5% | ICD-10 coded |

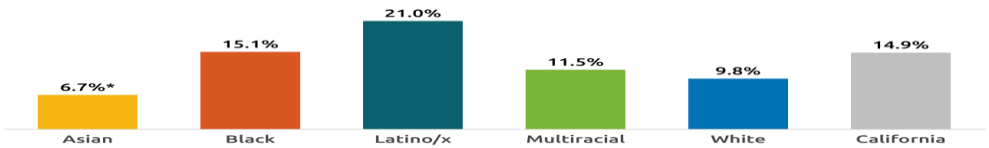
*Source: GBD 2021 US Obesity Forecasting Collaborators. National-level and state-level prevalence of overweight and obesity among children, adolescents, and adults in the USA, 1990-2021, and forecasts up to 2050. Lancet. 2024 Dec 7;404(10469):2278-2298. doi: 10.1016/S0140-6736(24)01548-4. PMID: 39551059; PMCID: PMC11694015.*

Dashed vertical line: 2021, forecast follows. Solid vertical line (my insertion): 2025. CSVS study period: 2020-2025

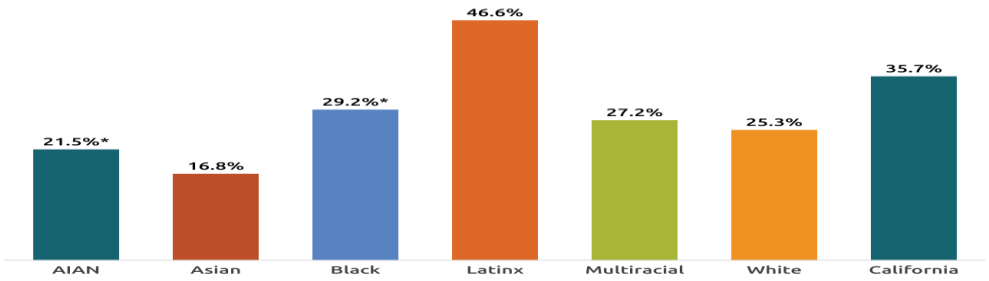
# State Comparison

**Overweight by Age**, by Race/Ethnicity, California, 2022

## Children 0 to 11




## Adolescents 12 to 17

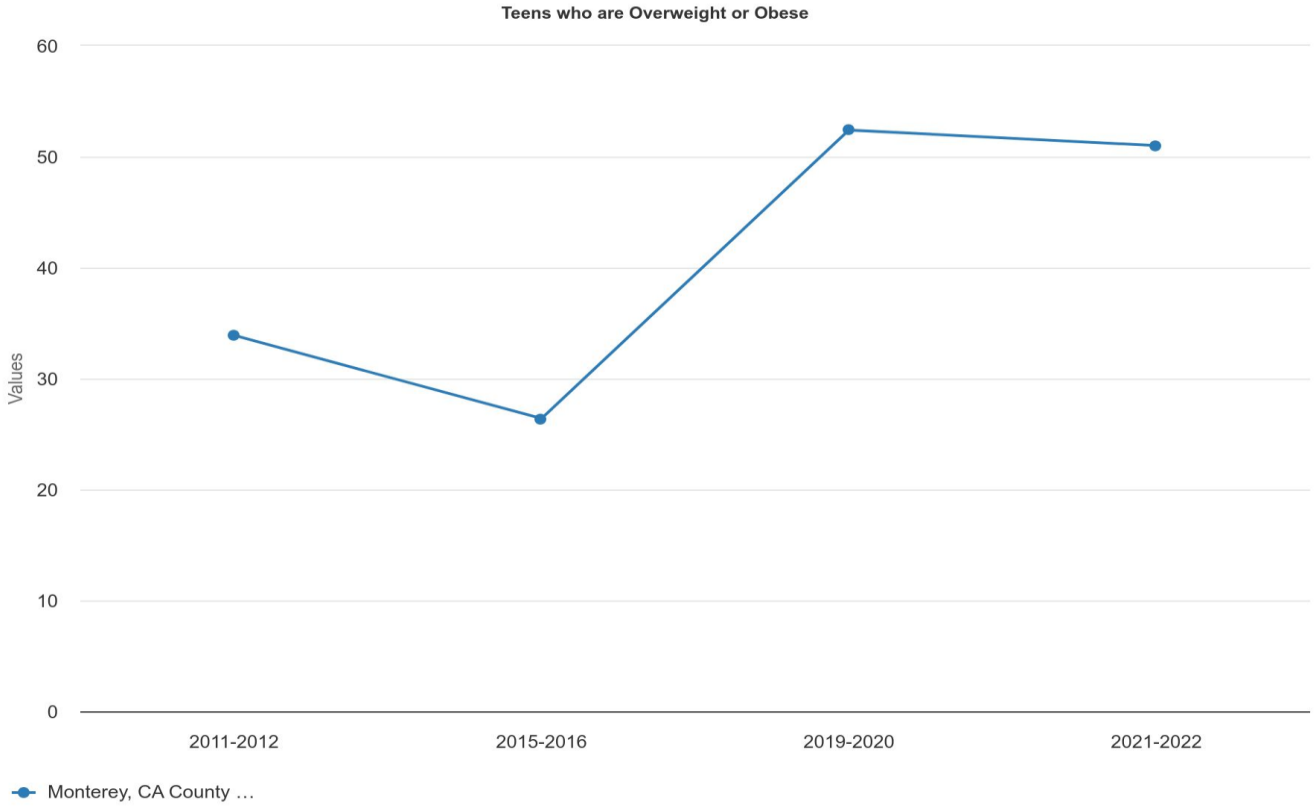



* Estimate is statistically unstable.
Notes: Children age 0 to 11 who are overweight for their age based on sex, age in months, and weight. Adolescents age 12 to 17 who are overweight or obese based on BMI equal to or greater than the 85th percentile of teens of the same age and sex. *AIAN* is American Indian / Alaska Native. Source uses *African American*.

***Sources:***

*"California Health Interview Survey," UCLA*

# Monterey County Comparison




*Source: California Health Interview Survey, Neighborhood Edition (2021-2022)*

# Comparisons Caveat

*CSVS Study period is 2020-2025*

**Most (frequently cited) studies are dated (up to 2020)**

**Included only more recent studies (even then, coverage was only up to 2022)**

**The National Study covers up to 2021, but forecasts to 2050**

**CSVS uses diagnostic codes (ICD10); comparators use BMI. CSVS uses different age-cuts.**
**Risk of under-counting is higher with visit-based ICD10 coding since overweight/Obesity problem, a chronic condition, may only be incidental to current visit Chief Complaint and therefore, may not be documented at the visit.**

# Provider Response & Management

## Referral to Community Nutrition Services & Programs:

**Healthy Together (Aspire)**

**Healthy Weight for Life (CCAH)**

**Kids Eat Right (Montage)**

**Nutrition and Wellness Education (NMC)**

**Weight Management Clinic (NMC)**

**Nutrition Pathfinders (County Health Department)**

**YMCA Youth Fit 4 Life (YF4L)**

*Also…*

Center for Healthy Weight Pediatric Weight Control Program (Stanford Medicine Children's Health (Palo Alto))

WATCH (Weight Assessment for Teen and Child Health) (UCSF Benioff Children's Hospitals (San Francisco))

## Referral to Behavioral Health Services

**Manage anxiety and depression if present**

## Referral for Pharmacotherapy

Stanford Medicine Children's Health (Palo Alto)
UCSF Benioff Children's Hospitals (San Francisco)

## Referral for Bariatric Surgery

UCSF Benioff Children's Hospitals (San Francisco)
Stanford Medicine Children's Health (Palo Alto)

***UCSF Benioff Children's Hospitals (San Francisco) also have Pediatric Fatty Liver and Weight Assessment Clinic that considers drug and surgical therapies alongside lifestyle intervention.***

# CPG (Clinical Practice Guideline) on Ped Obesity

Recommendations:

*"Obesity is a [treatable] Chronic Disease With Complex Contributing Factors"*

- ≥2 years: BMI screening & lifestyle/behavioral interventions
- 8–11 years: Consensus-based off-label pharmacotherapy consideration in select cases
- ≥12 years: Pharmacotherapy (as adjunct to intensive health behavior and lifestyle treatment)
- ≥13 years: Evaluation for referral for metabolic and bariatric surgery in those with severe obesity (BMI ≥120% of the 95th percentile)

Source: 2023 AAP CPG: *Pediatrics* (2023) 151 (2): e2022060641. https://doi.org/10.1542/peds.2022-060641

# Key Findings & Next Steps

| 22.4% | 21.2% | 33.7% | 52 vs 46% |
|---|---|---|---|
| 6-year cumulative incidence | Peak: ages 10–14 | Sanborn Medical highest site | Obese vs Overweight |

- Trend analysis — incidence peaked 2021, now stabilizing around 9–10%
- Sanborn site deep-dive — 33.7% rate reflects local community burden (93905 & 93906 ~50% of all Obesity; 85% served by Sanborn)
- Severity stratification — 52% obese vs 46% overweight, with 1.8% classified severe
- CSVS overweight / Obesity stats are better than national, state and county (with methodological caveats)
- Resources such as intervention programs need to be evaluated for efficacy and utilized
  - Community Nutrition Services & Programs
  - Behavioral Health Services
- Clinical Practice Guidelines recommend following considerations:
  - Age 12 and above: Pharmacotherapy (GLP-1ra agents) (Resources: Stanford, UCSF Children's)
  - Age 13 and above: Bariatric surgery (Resources: Stanford, UCSF Children's)
- Paradigm shift: ***Overweight / Obesity is a treatable chronic disease, not a personal choice sequela***